

Postgraduate Diploma

Balanced Feed Manufacturing for Nutritionists





Postgraduate Diploma Balanced Feed Manufacturing for Nutritionists

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

Website: www.techtitute.com/pk/nutrition/postgraduate-diploma/postgraduate-diploma-balanced-feed-manufacturing-nutritionists

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01

Introduction

This program in Balanced Feed Manufacturing for Nutritionists 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 nutritionists in the most advanced technical and scientific aspects of Animal Nutrition and Feeding.



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Become one of the most demanded professionals of the moment: train to be a specialist in Balanced Feed Manufacturing for Nutritionists

This intensive specialization enables the incorporation, integration and specialization for nutritionists in one of the most important sectors of animal production in the current day. It is a sector with the greatest demand for professionals and need for specialization.

This Postgraduate Diploma will teach you the whole process that must be followed in the manufacture of balanced food 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 specialized theoretical and practical knowledge in attaining a product that complies with what is formulated on paper and has all the quality and innocuousness in order to reach the desired benefit in the animals that consume it.

An ambitious, broad, structured and interconnected proposal which covers everything from the fundamental and relevant principles of nutrition to feed manufacturing. A program that includes all the high-level features of a scientific, educational and technological course.



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

In short, it is an ambitious, broad, structured and interconnected proposal which covers everything from the fundamental and relevant principles of nutrition to feed manufacturing. A program that includes all the high-level features of a scientific, educational and technological course.

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.



A course that will enable you to work in food production sectors for or from animals, 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 settings, who will work through theoretical content in an efficient way, but, above all, will make available their own practical knowledge derived from experience: one of the distinguishing features of this specialization.

This mastery of the subject matter is complemented by the effectiveness of the methodology used in the design of this Postgraduate Diploma. 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 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 for Nutritionists 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 that you will be able to achieve thanks to a highly intensive and detailed course.



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If your objective is to broaden your skill set to include new paths to success and development, this is the Postgraduate Diploma for you: a specialization that aspires to excellence”



General Objectives

- ♦ 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 animal nutrition and how animals use of 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 expert specialization in the nutritional requirements for the two main bird species 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

- ♦ Develop the most important concepts in animal nutrition while considering the functions and effects of diets on 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).



- ♦ 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 phytochemicals as a category that goes beyond essential oils; what they are, types of phytochemical substances, modes of use and benefits.
- ♦ Determine the processes involved in the creation of animal feed.
- ♦ Establish an appropriate way to manage raw materials.
- ♦ Analyze the different food presentations and their manufacturing processes.
- ♦ 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.

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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An impressive teaching staff, made up of professionals from different areas of expertise, will be your teachers during your training: a unique opportunity not to be missed”

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.

Dr. Ordoñez Gómez, Ciro Alberto

- ♦ Animal technician
- ♦ Master's Degree in Animal 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

Dr. Portillo Hoyos, Diana Paola

- ♦ Professional Graduated from the National University of Colombia.

Dr. Rodríguez Patiño, Leonardo

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

Dr. 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 specialisation have been developed by the different experts in 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 Feed 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 Feed
 - 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. Concentrated Energy
 - 1.1.5.2. Protein Energy
- 1.2. Plant-Based By-products Used in Feeding Ruminants and Non-Ruminants
 - 1.2.1. Cereal Grains
 - 1.2.1.1. Maize
 - 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. Rice By-products
 - 1.2.2.1 Fine-ground Bran or Rice Bran
 - 1.2.3. Oleaginous By-products
 - 1.2.3.1. Cotton
 - 1.2.3.1.1. Cotton Seeds
 - 1.2.3.1.1. Cotton Flour
 - 1.2.3.2. Soya
 - 1.2.3.2.1 Soybeans
 - 1.2.3.2.2. Soybean Shell
 - 1.2.3.2.3. Soya Flour
 - 1.2.3.3. Sunflower
 - 1.2.3.3.1 Sunflower Shell
 - 1.2.3.3.2. Sunflower Flour
 - 1.2.4. Horticultural By-products
 - 1.2.4.1. Salad Cucumber Crop Residue.
 - 1.2.4.2. Melon Crop Residue.
 - 1.2.4.3. Tomato Crop Residue
- 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 Meal
 - 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 (or Restaurant 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 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. Symbiotic
 - 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. Ingredient Proportions 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 "MNB" or "RAS" with "Nutriliq 2050" (including Urea)
 - 1.6.2.1.1.3. Composition of "MNB" or "RAS" with Glucose or Molasses"
 - 1.6.2.1.1.4. Mineral Salt Composition of the MNB and RAS
 - 1.6.2.2. Purpose of Each Ingredient
 - 1.6.2.3. Differences Between 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. Main 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 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. Ammonia Concentration
 - 1.8.5.2.3. Production of Gas
 - 1.8.5.2.4. Impacts on Rumen Degeneration and DM and Cell Wall Digestibility
 - 1.8.5.2.5. Impacts on Rumen Degeneration and Protein Digestibility
 - 1.8.5.2.6. Impacts on Digesta Transit Kinetics
 - 1.8.5.3. Effects on Methanogenesis
 - 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 the 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. Dry Matter Digestibility
 - 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. "Difference" 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
 - 1.10.1.3.3.4. Mordant Chrome-Treated Fiber
 - 1.10.1.3.3.5. 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 Size
- 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. Additives in Animal Food.

- 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 Organic Acids Are
 - 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. Egg and Chicken Pigmentation
 - 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. Products for Odor Control
 - 2.8.1. Air Quality and Ammonia Control in Poultry Farming
 - 2.8.2. Yucca Shidigera
 - 2.8.3. Odor Control in Pig Farming
- 2.9. PhytoGENICS
 - 2.9.1. What PhytoGENIC Substances Are
 - 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 for Nutritionists: Processes, Quality Control and Critical Points.

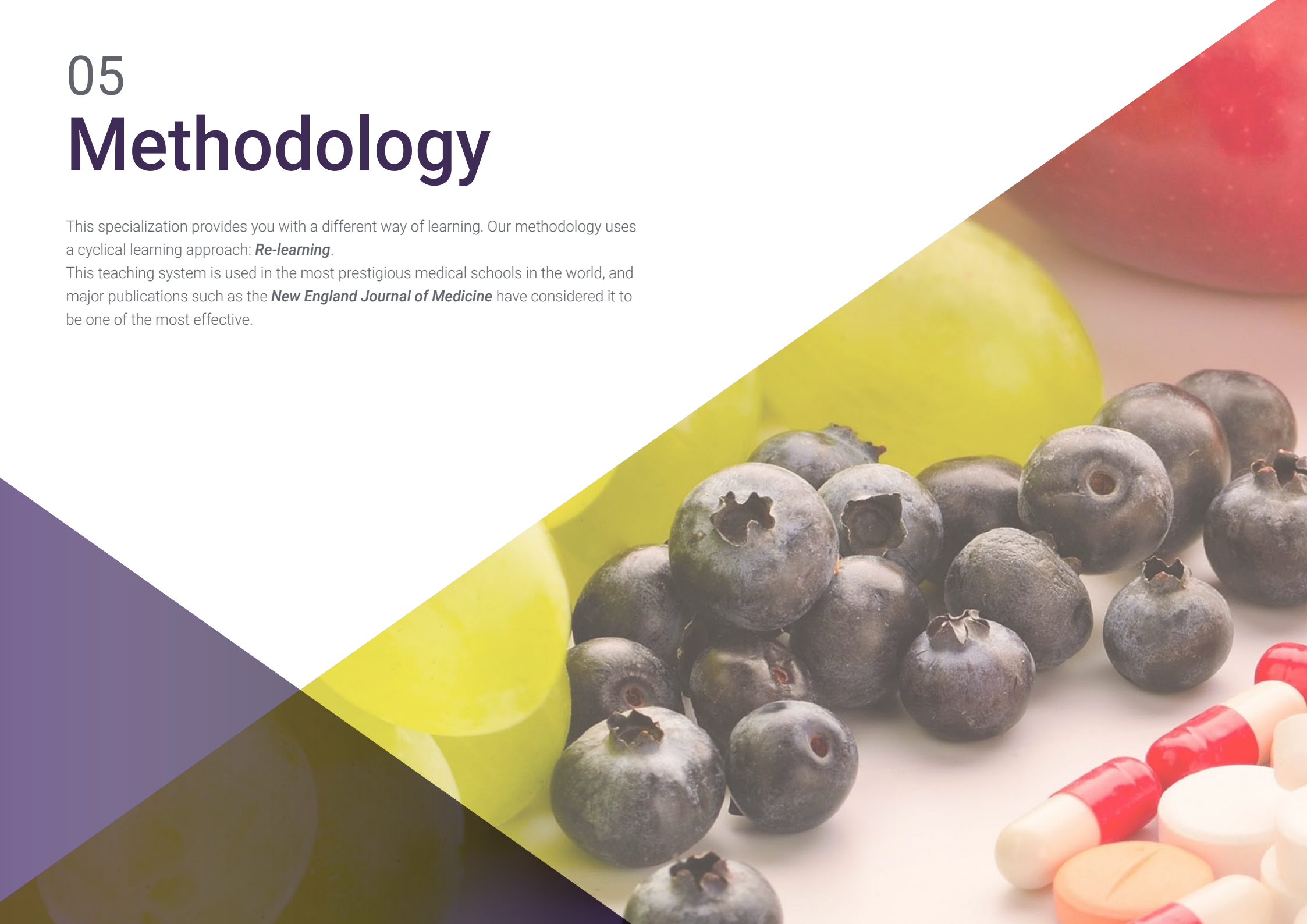
- 3.1. Aspects to Be Considered from Formula to Food Processing
 - 3.1.1. What a Balanced Feed Formula Is and the Information It Should Contain
 - 3.1.2. How to Read and Analyze a Balanced Feed Formula
 - 3.1.3. Preparation of Raw Materials and Additives
 - 3.1.4. Equipment Preparation
 - 3.1.5. Basic Analysis of Balanced Feed Manufacturing for Nutritionists
- 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 Features in Handling and Storage
 - 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. Mill Types
 - 3.5.3. Milling Efficiency
 - 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 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. Pellet Types
 - 3.7.4. Factors which Affect and Benefit the Success of the Process
 - 3.7.5. Pellet Quality and Effects on 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. Sifting or Dusting
 - 3.8.5. Densimetric Tables
 - 3.8.6. Hopper Scale
 - 3.8.7. Mill Batchers
 - 3.8.8. Post-pellet 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 Management 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 specialization 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.





“

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. Nutritionists learn better, faster, and more sustainably over time.

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



According to Dr. Gérvas, the clinical case is the annotated presentation of a patient, or group of patients, which becomes a "case", an example or model that illustrates some peculiar clinical component, either because of its teaching potential or because of its uniqueness or rarity. It is essential that the case is based on current professional life, trying to recreate the real conditions of professional nutritional 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. Nutritionists who follow this method not only grasp concepts, but also develop their mental capacity by evaluating real situations and applying their knowledge.
2. The learning is solidly focused on practical skills that allow the nutritionist to better integrate the knowledge into clinical practice.
3. Ideas and concepts are understood more efficiently, given that the example situations are based on real-life.
4. Students like to feel that the effort they put into their studies is worthwhile. This then translates into a greater interest in learning and more time dedicated to working on the course.



Re-Learning Methodology

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

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



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

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

With this methodology we have have trained more than 45,000 nutritionists with unprecedented success, in all clinical specialties regardless of the workload. All this in a highly demanding environment, where the students have a strong socio-economic profile and an average age of 43.5 years.

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

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

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



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



Study Material

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

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



Nutrition Techniques and Procedures on Video

We introduce you to the latest techniques, the latest educational advances, and the forefront of current nutritional procedures and techniques. All this, in first person, with the maximum rigor, explained and detailed for your assimilation and understanding. And best of all, you can watch them as many times as you want.



Interactive Summaries

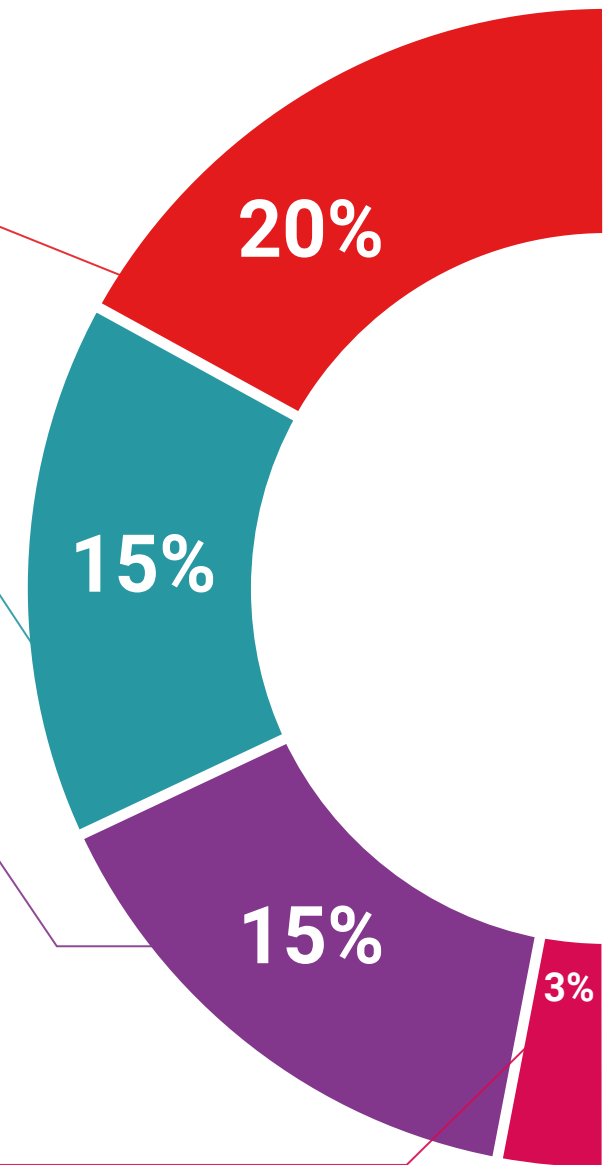
We present the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

This unique specialization system for presenting multimedia content 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 specialization.





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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Add to your specialization this Postgraduate Diploma in Balanced Feed Manufacturing for Nutritionists: a highly valued qualification for any professional in this field”

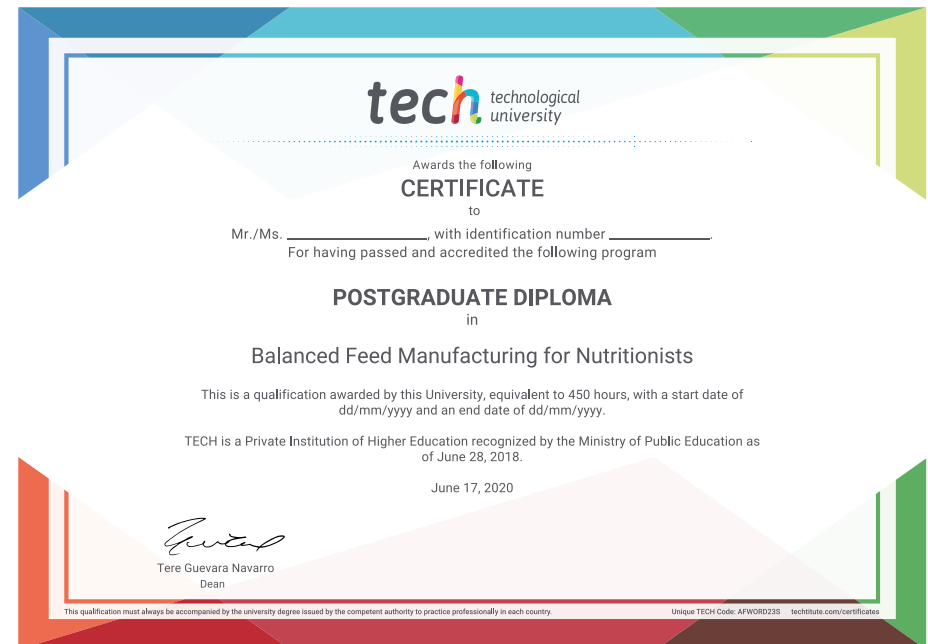
This **Postgraduate Diploma in Balanced Feed Manufacturing for Nutritionists** contains the most complete and up-to-date scientific program on the market.

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

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

Title: **Postgraduate Diploma in Balanced Feed Manufacturing for Nutritionists**

Official Number of Hours: **450**



*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.

future
health confidence people
education information tutors
guarantee accreditation teaching
institutions technology learning
community commitment
personalized service innovation
knowledge present
development languages
classroom



Postgraduate Diploma Balanced Feed Manufacturing for Nutritionists

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

Postgraduate Diploma

Balanced Feed Manufacturing for Nutritionists

