





Postgraduate Diploma Aquaculture Nutrition

Course Modality: Online Duration: 6 months.

Certificate: TECH - Technological University

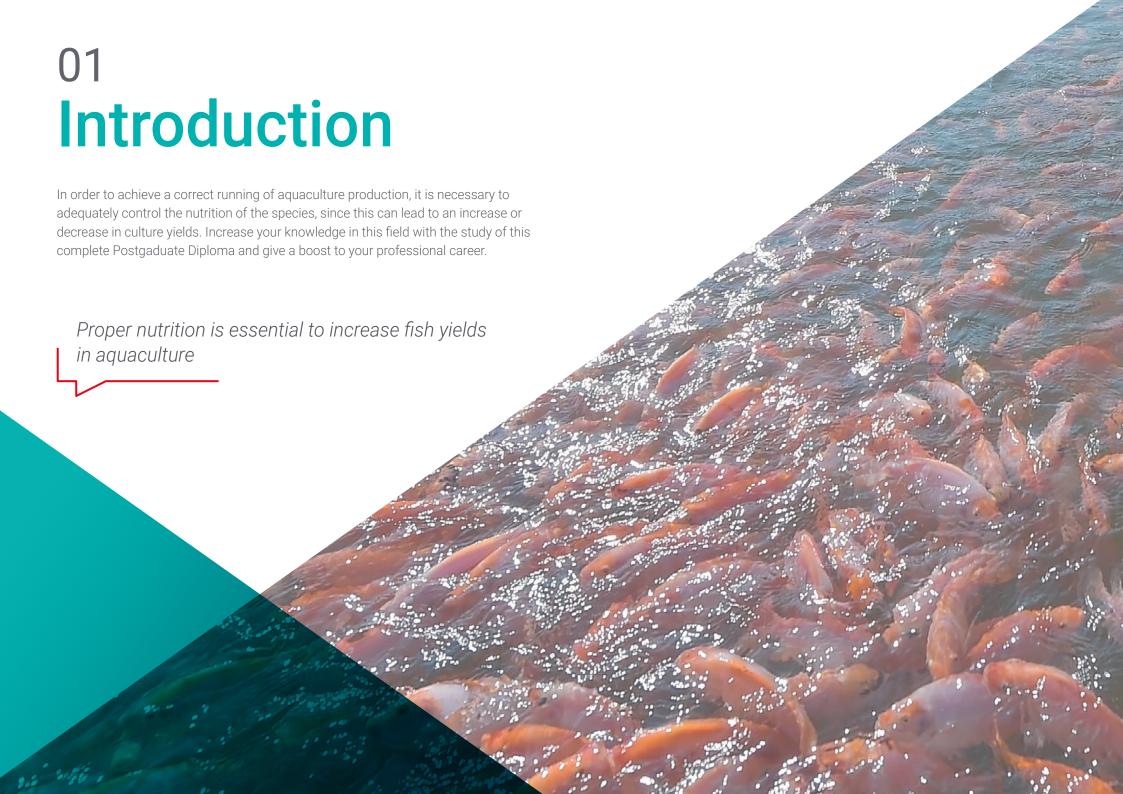
18 ECTS Credits

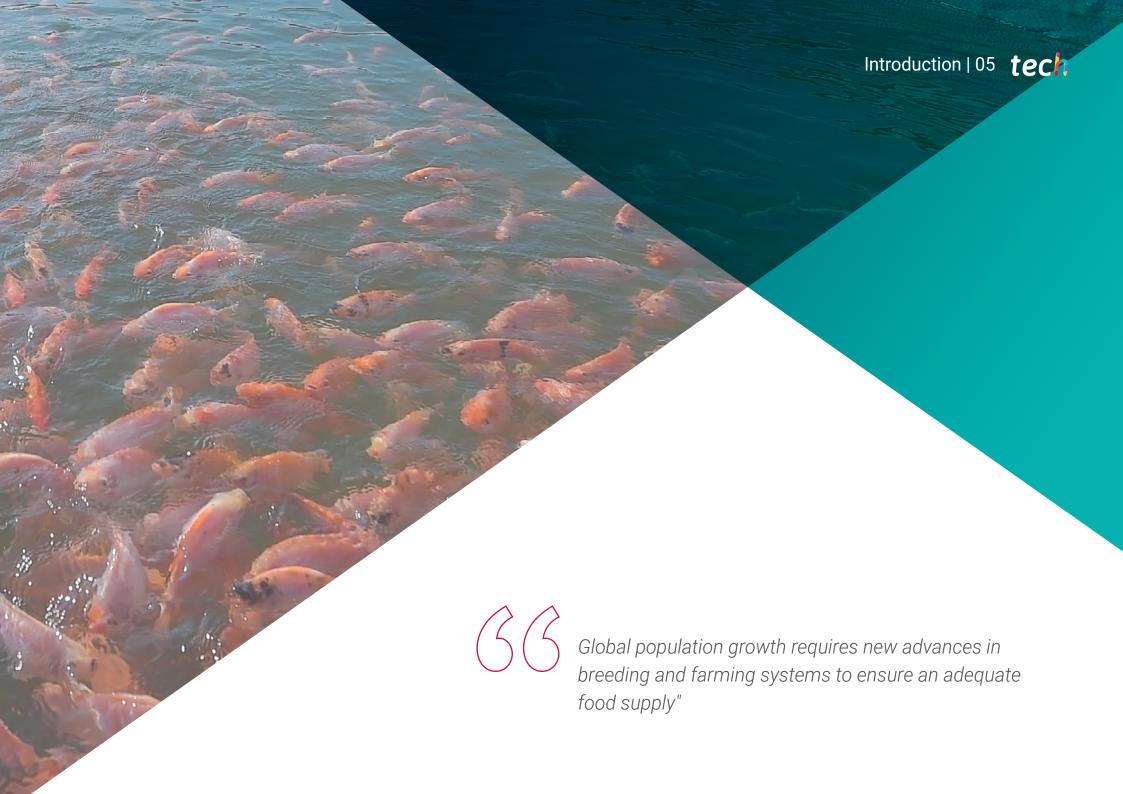
Teaching Hours: 450 hours.

Website: www.techtitute.com/us/veterinary-medicine/postgraduate-diploma/postgraduate-diploma-aquaculture-nutrition

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tech 06 | Introduction

Aquaculture is an activity of great relevance, since it has become one of the most economically important activities in the field of food production and for the breeding of live organisms for repopulation and for the cultivation of species for ornamental use, among others.

The management and knowledge of nutrition in different aquatic species can be one of the fundamental factors that determine the good yield of a culture, while a poor management of this aspect can be reflected in low aquaculture production.

In the current circumstances, where the use of chemicals and antibiotics is increasingly limited, it becomes more necessary to master the application of nutrients and additives in the manufacture of feed used in the aquaculture industry.

The study of the intestinal microbiota of fish, for example, is also an important development in aquaculture nutrition. Currently, there is a lot of information about their composition, abundance, diversity and activity and how to make use of this knowledge to improve culture yields, since these microbes have important implications on the health of the host, its development, well-being and, above all, on its nutrition.

In addition, it must be taken into account that each type of culture has different characteristics, and therefore each species has a specific set of requirements in terms of nutrition

This Postgraduate Diploma provides students with specialized tools and skills to successfully develop their professional activity in the wide aquaculture environment, works on key competencies such as knowledge of the reality and daily practice of the professional, and it further promotes responsibility in the monitoring and supervision of their work, as well as communication skills through essential teamwork. In addition, as it is an online Postgraduate Diploma, the student is not constrained by fixed timetables or the need to move to another physical location, but can access the contents at any time of the day, balancing his or her work or personal life with their academic life.

This **Postgraduate Diploma in Aquaculture Nutrition** contains the most complete and up-to-date educational program on the market. The most important features of the program include:

- Practical cases studies are presented by experts in Aquaculture.
- The graphic, schematic, and eminently practical contents with which they are created provide scientific and practical information on the disciplines that are essential for professional practice.
- · New developments in Aquaculture Nutrition.
- Practical exercises where the self-assessment process can be carried out to improve learning.
- Special emphasis is placed on innovative methodologies in Aquaculture Nutrition.
- Theoretical lessons, questions to the expert, debate forums on controversial topics, and individual reflection assignments.
- Content that is accessible from any fixed or portable device with an Internet connection.



Immerse yourself in this high-quality educational training-program, which will allow you to face the future challenges in Aquaculture Nutrition"



This Postgraduate Diploma is the best investment you can make in selecting a refresher program to bring your knowledge of Aquaculture Nutrition up to date"

Its teaching staff includes professionals belonging to the veterinary field, who contribute their expertise to this training, as well as renowned specialists from leading societies and prestigious universities.

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

This program is designed around Problem Based Learning, whereby the specialist must try to solve the different professional practice situations that arise during the academic year. For this purpose, the professional will be assisted by an innovative Interactive Video System, developed by well-known experts in Aquaculture Nutrition

This training comes with the best didactic material, providing you with a contextual approach that will facilitate your learning

This 100% online Postgraduate
Diploma will allow you to combine
your studies with your professional
work while increasing your knowledge
in this field





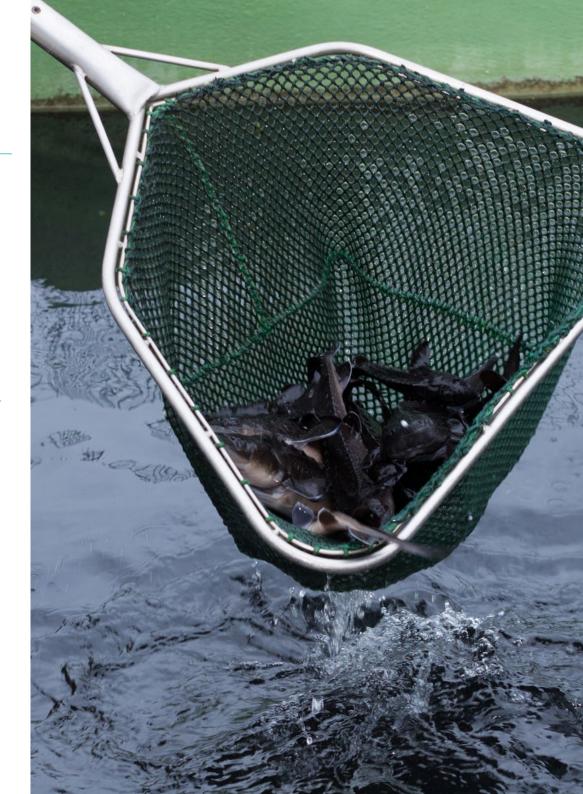


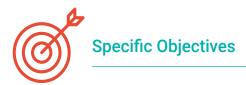
tech 10 | Objectives



General Objectives

- Examine the different types of aquaculture.
- Generate specialized knowledge on the criteria and parameters that determine a suitable environment in which to implement an aquaculture culture.
- Specify which measures are necessary to maintain reliable cultures.
- Generate specialized knowledge on the fundamentals of Genetic Improvement in Aquaculture.
- To master the formulation techniques of different types of feed for aquaculture cultures.
- Examine the nutritional requirements of aquatic cultures.
- Build specialized, quality knowledge on feed to select the most appropriate raw materials.
- Analyze the intestinal microbiota of aquatic species to obtain better culture yields.
- Analyze the details of the different aquaculture cultures.
- Analyze the differences that can be observed between the various types of aquaculture cultures.
- Examine the different systems used within the variety of existing aquaculture cultures.
- Determine the different standards to be followed in the different products obtained within the wide practice of Aquaculture.





- Analyze the history and evolution of Aquaculture Production for a better understanding of its current situation.
- Examine the different criteria that determine water quality in Aquaculture.
- Determine the parameters that determine water quality in Aquaculture.
- Analyze the different types of crops that exist and the most frequent production systems in them.
- Examine the different biosafety measures existing within the different types of culture.
- Build specialized knowledge on the different genetic resources that can be used to achieve culture improvement.
- Establish the processes of handling and management of waste in aguaculture.
- Develop specialized knowledge on ways to control, manage, and minimize the pollution produced by this activity.
- Determine the nutritional requirements of fish, crustaceans, and mollusks.
- Manage practical feed formulation for different life stages, such as larval, fattening, and the reproductive stages.
- Analyze the digestibility of the fundamental components of feedstuffs
- Establish the relevant aspects of the different forms of feed presentation for aquaculture cultures.
- Build specialized knowledge on the supply of minerals, vitamins, and other additives.
- Analyze the advantages and possible disadvantages derived from the use and misuse of Probiotics.
- Examine live feed cultures and their use in Aquaculture.
- Examine the production systems used in Inland Aquaculture.
- Analyze the culture models of different inland species.

- Determine the production systems used in Marine Aquaculture
- Analyze the culture patterns of different marine species.
- Examine the production systems used in Ornamental Aquaculture
- Analyze the culture models of different Ornamental Species
- Determine the details and differences between fish species in order to take them into account during their cultivation.
- Develop the most relevant aspects of other types of aquaculture models, such as Live Food Culture.







tech 14 | Course Management

Management



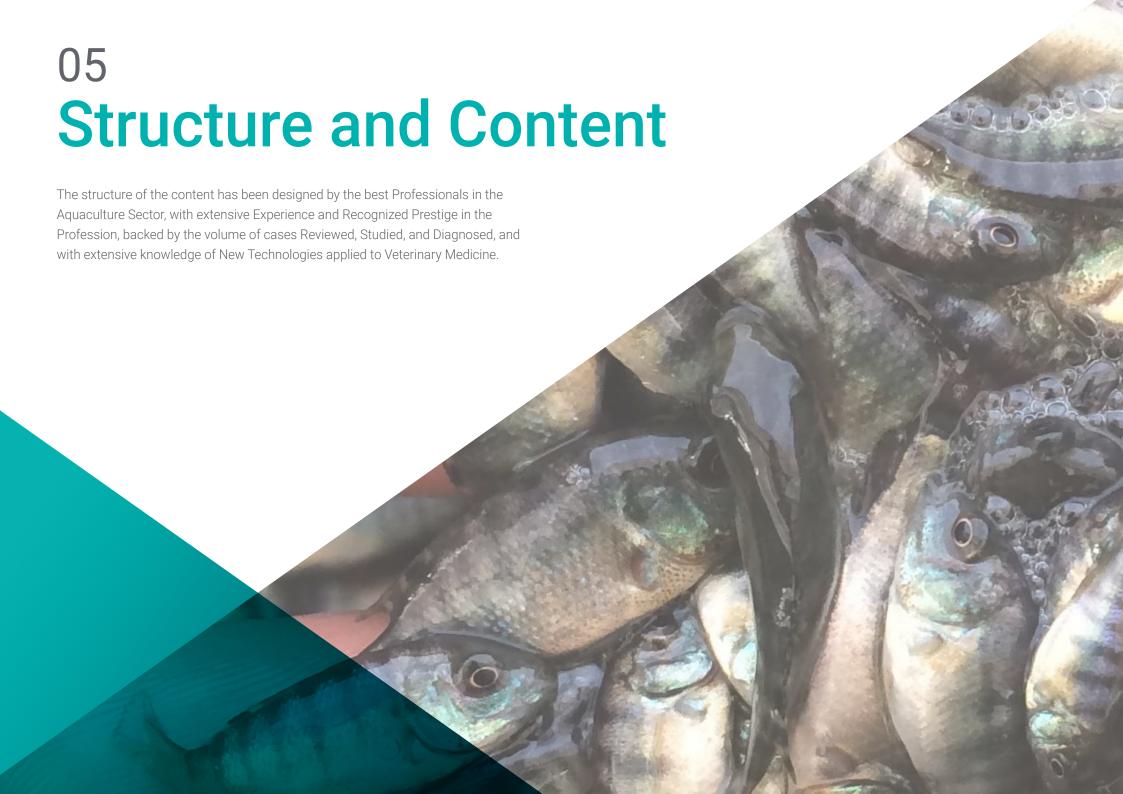
Mr. Gracia Rodríguez, José Joaquín

- Degree in Veterinary Medicine from the University of Murcia.
- Diploma in Aquaculture Specialization. Polytechnic University of Valencia
- Advanced Ichthyopathology Course
- International Congress on Sustainable Aquaculture
- Certificate in Pedagogical Aptitude University of Extremadura
- Attendance at the AVEPA Continuing Education Conference
- Teacher in Higher Vocational Training Degrees in the Sanitary Branch
- Training in Biosecurity and Pathology in the Ornamental Aguaculture Sector
- Speaker at National Congresses and Courses on Ornamental Aquaculture
- Training Courses for Livestock Farmers on Safety and Regulations in the Transport of Animals
- Food Handler Courses for Companies and Individuals.
- Consultant in Ichthyopathology for several companies in the Aquaculture Sector
- Technical Director in the Ornamental Aquaculture Industry
- Coordination of Projects in Maintenance of Wild Species and Water Quality
- Projects in Natural Parks for the Control of Allochthonous Ichthyofauna
- Projects for the Recovery of Native Crayfish
- Carrying out Wildlife Species Censuses
- Coordination of livestock Sanitation Campaigns in Castilla-La Mancha
- · Veterinarian in a Breeding and Genetic Improvement Company in the Rabbit Breeding Secto



Ms. Herrero Iglesias, Alicia Cristina

- Degree in Veterinary Medicine from the University of Extremadura.
- Master's Degree in Secondary Education, International University of La Rioja
- Course "Animal Welfare in Livestock Production" organized by the Official College of Veterinarians of Madrid, in collaboration with the Faculty of Veterinary Medicine UCM and the Ministry of Environment and Land Management of the Community of Madrid.
- Occupational Trainer, given by the INESEM Postgraduate Training Center.
- Course "Trainer of Trainers" given by the Antonio de Nebrija University
- Teacher in the Degree in Veterinary Medicine, University of Alfonso X el Sabio (Madrid)
- Since February 2012 she has been Teaching "Ethnology and Veterinary Business Management" and "Animal Production"
- From the Academic Year 2016-2017 to the present, she has been teaching Hematological Analysis Techniques and Immunological Diagnostic Techniques for the 2nd year of the Formative Cycle of Higher Degree of Clinical and Biomedical Laboratory in Opesa (Madrid)
- Secondary School Teacher Cristóbal Colón School (Talavera de la Reina) Academic Year 18/19
- Veterinary Trainer in the Alonso Herrero HACCP Company for the Training of Food Handlers
- Teacher of the Course of Veterinary Technical Assistant, in Grupo INN, giving Classes during the course 18/19 (Talavera de la Reina)
- Her Professional Career began with Field Work in the Field of Large Animal Production.
- · After working in Animal Health and Sanitary Inspection, she began to focus on the Field of Teaching.
- At present, she combines her Teaching Work at the University with Higher Technical Classes and Field Activities within the Veterinary Field.
- During her Professional Career, she has taken a large number of ongoing Training and Specialization Courses
- Internships in the Jesús Usón Center for Minimally Invasive Surgery (CCMI) in Cáceres, Spain
- She was also a Student Intern at the Department of Medicine of the Faculty of Veterinary Medicine of the UEX.

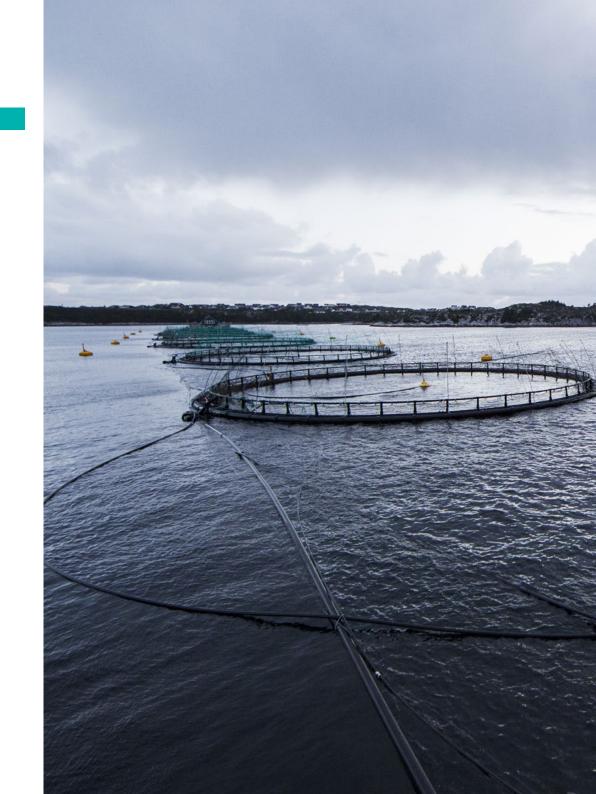




tech 18 | Structure and Content

Module 1. Aquaculture Production

- 1.1. Aquaculture
 - 1.1.1. History
 - 1.1.2. Types of Aquaculture according to the Organism to be Cultured.
 - 1.1.3. Types of Aquaculture according to Location.
 - 1.1.4. Aquaculture in Micro-reservoirs.
 - 1.1.5. Recirculation Systems in Aquaculture.
- 1.2. Water Quality
 - 1.2.1. Water in Aquaculture.
 - 1.2.2. Physical Properties of Water.
 - 1.2.3. Water Quality Criteria.
 - 1.2.4. Measurements
- 1.3. Water Quality Parameters in Aquaculture Cultures.
 - 1.3.1. Physical Parameters
 - 1.3.2. Chemical Parameters
 - 1.3.3. Biological Parameters
- 1.4. Types of Aquaculture.
 - 1.4.1. Fish Farming
 - 1.4.2. Bivalve Mollusc Culture.
 - 1.4.3. Crustacean Culture
- 1.5. Live Food Culture.
 - 1.5.1. Importance of Live Food.
 - 1.5.2. Use of Microalgae as Live Feed.
 - 1.5.3. Rotifers as Live Food.
 - 1.5.4. Artemia as Live Food.
 - 1.5.5. Other Organisms used as Live Food.





Structure and Content | 19 tech

- 1.6. Aquaponics.
 - 1.6.1. Introduction.
 - 1.6.2. Aquaponic Recirculation Systems.
 - 1.6.3. Design of Aquaponic Recirculating Aquaponics System.
 - 1.6.4. Species used in this type of System.
- 1.7. Biosecurity in Aquaculture Farms.
 - 1.7.1. Biosafety.
 - 1.7.2. Measures to reduce the Risk of Pathogen Occurrence.
 - 1.7.3. Measures to reduce the Risk of the Spead of Pathogens
- 1.8. Prophylaxis and Vaccination in Aquaculture.
 - 1.8.1. Immunology
 - 1.8.2. Vaccination as a Preventive Measure.
 - 1.8.3. Types of Vaccines and Administration channels in Aquaculture.
- 1.9. Handling and Waste Management in Aquaculture.
 - 1.9.1. Waste Management
 - 1.9.2. Waste Characteristics
 - 1.9.3. Waste Storage
- 1.10. Aquaculture as a Source of Pollution and Pollution Prevention.
 - 1.10.1. Inland Aquaculture as a Source of Pollution.
 - 1.10.2. Marine Aquaculture as a Source of Pollution.
 - 1.10.3. Other Types of Aquaculture as a Source of Pollution.
 - 1.10.4. Prevention of Water Pollution from Inland Aquaculture Activity.
 - 1.10.5. Prevention of Water Pollution in Marine Aquaculture Activity.
 - 1.10.6. Prevention of Water Pollution in other Aquaculture Activities.

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Module 2. Nutrition in Aquaculture Farms

- 2.1. Nutritional Requirements of Aquatic Organisms.
 - 2.1.1. Nutritional Requirements of Fish.
 - 2.1.2. Nutritional Requirements of Crustaceans.
 - 2.1.3. Nutritional Requirements of Molluscs.
- 2.2. Practical Feed Formulation.
 - 2.2.1. Larval Feed Formulation.
 - 2.2.2. Feed Formulation for Fattening.
 - 2.2.3. Feed Formulation for the Reproductive Stage.
- 2.3. Feed Quality and Raw Material Selection.
 - 2.3.1. Proteins.
 - 2.3.2. Aminoacids:
 - 2.3.3. Carbohydrates.
 - 2.3.4. Lipids.
- 2.4. Digestibility of Food Components.
 - 2.4.1. Protein.
 - 2.4.2. Aminoacids:
 - 2.4.3. Carbohydrates.
 - 2.4.4. Lipids.
- 2.5. Forms of Presentation of Feed for Aquaculture Cultures.
 - 2.5.1. Floating Feeds
 - 2.5.2. Pelletized
 - 2.5.3. Expanded
 - 2.5.4. Extruded
- 2.6. Supply of Minerals, Vitamins and Other Additives.
 - 2.6.1. Minerals.
 - 2.6.2. Vitamins.
 - 2.6.3. Other Additives

- 2.7. Intestinal Microbiota.
 - 2.7.1. The Importance of Microbiota.
 - 2.7.2. Microbiota Composition
 - 2.7.3. Factors influencing the Composition of the Microbiota.
- 2.8. Use of Probiotics in Aquaculture.
 - 2.8.1. Probiotics
 - 2.8.2. Beneficial Effects of Probiotics.
 - 2.8.3. Immune Response to the Intestinal Microbiota.
 - 2.8.4. Organisms considered as Probiotics.
 - 2.8.5. Some Problems associated with the Misuse of Probiotics.
- 2.9. Live Feeding: Probiotics and Prebiotics.
 - 2.9.1. Bacterial Aspects of Live Feeding.
 - 2.9.2. Bacterial Control in Live Feed Cultures.
 - 2.9.3. Live Feed Enrichment and Microbial Implications.
 - 2.9.4. Probiotics in Live Feed Production.
 - 2.9.5. Prebiotics and Synbiotics in Live Feed.
- 2.10. Antinutritional Factors and Toxins in Feeds.
 - 2.10.1. Thiaminase
 - 2.10.2. Avidin
 - 2.10.3. Protease Inhibitors
 - 2.10.4. Lectins
 - 2.10.5. Phytoestrogens and Phytosterols.
 - 2.10.6. Phytic Acid:
 - 2.10.7. Glucosinolates
 - 2.10.8. Saponins
 - 2.10.9. Alkaloids
 - 2.10.10. Mycotoxins

Module 3. Aquaculture Culture Models

- 3.1. Continental Models I.
 - 3.1.1. Cyprinid Farming
 - 3.1.2. Tilapia Farming
- 3.2. Continental Models II.
 - 3.2.1. Trout Farming
 - 3.2.2. Salmon Farming
- 3.3. Marine Aquaculture Models I.
 - 3.3.1. Sea Bream Farming
 - 3.3.2. Sea Bass Farming
- 3.4. Marine Aquaculture Models II.
 - 3.4.1. Turbot Farming
 - 3.4.2. Tuna Farming
- 3.5. Mollusc Farming Models.
 - 3.5.1. Clam Farming
 - 3.5.2. Mussel Farming
- 3.6. Crustacean Culture Model.
 - 3.6.1. Shrimp Farming
 - 3.6.2. Prawn Farming
- 3.7. Models for Ornamental Aquaculture Cultures. Freshwater Species I.
 - 3.7.1. Viviparous Culture
 - 3.7.2. Cultivation of South American Cichlids.
 - 3.7.3 Cultivation of African Cichlids
- 3.8. Models for Ornamental Aquaculture Cultures. Freshwater Species II.
 - 3.8.1. Cultivation of African Cichlids.
 - 3.8.2. Discus Fish Farming.
 - 3.8.3. Koi Culture
 - 3.8.4. Culture of Other Freshwater Species.

- 3.9. Models for Ornamental Aquaculture. Saltwater Species
 - 3.9.1. Clownfish Farming
 - 3.9.2. Paracanthurus Hepatus Farming.
 - 3.9.3. Pterapogon Kauderni Farming.
 - 3.9.4. Macro and Microalgae Culture.
- 3.10. Other Aquaculture Culture Models.
 - 3.10.1. Microalgae Culture
 - 3.10.2. Macroalgae Culture
 - 3.10.3. Live Food Culture.



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





tech 24 | Methodology

In a given situation, what would you do? Throughout these months, the professional will face multiple simulated clinical cases based on real patients in which he/she will have to investigate, establish hypotheses and finally, resolve the situation. This method ensures specialists learn better as they accept more responsibility and get closer to the reality of their professional future.



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"



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 studies be based on current professional experiences which attempt to recreate the real conditions of professional practices in the veterinary

The effectiveness of the method is justified by four fundamental achievements:

01 field.

Students who follow this method not only grasp concepts, but also develop their mental capacity by evaluating real situations and applying their knowledge.

02

The learning process has a clear focus on practical skills that allow the student to better integrate into the real world.

03

Ideas and concepts are understood more efficiently, given that the example situations are based on real-life.

04

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.



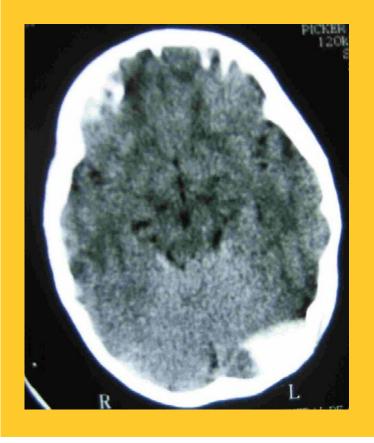
The student will be able to learn with the advantages of access to simulated learning environments and the "Learning from an expert approach in which they learn by observation"

An immersive system of knowledge transmission, through participation in resolving real problems and supported by the best audiovisual technology on the educational market"

The Re-learning method, will help you to learn and consolidate what you have learnt in a more efficient way, as well as allowing you to achieve your training goals more quickly and with less effort



Methodology | 27 tech



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 Online University. The teaching quality, the quality of the materials, the structure of the course and the objectives achieved were rated as very positive.

With more than 40,000 teachers trained in this methodology and a satisfaction rating of 8.0, relearning has proven to be on par with the most demanding assessment frameworks"

In our system, 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.

More than 150,000 professionals have been trained with this methodology, achieving unprecedented success. All this in a highly demanding environment, with the highest standards of evaluation and monitoring.

This training will be based, above all, on experience. A process in which you will test the knowledge you will acquire, consolidating and improving it gradually

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



Study Material

All didactic content is created by the very specialists who will teach the course, making it both specific and practical.

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.



Educational Techniques and Procedures on Video

We introduce you to the latest techniques, with the latest educational advances, and at the forefront of education. 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

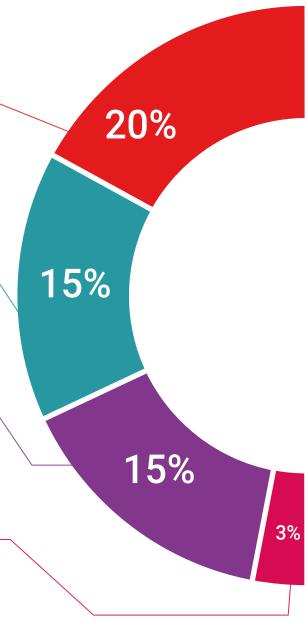
We present the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge. This unique training system for presenting multimedia content was awarded by Microsoft as a "European Success Story".



Additional Reading

By participating in this course you will have access to a virtual library where you will be able to complement and keep your training up-to-date with the latest articles on the subject, consensus documents, international guidelines...

An invaluable resource that you will be able to use even when you finish your course with us.



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 & Retesting



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.

Learning from an expert



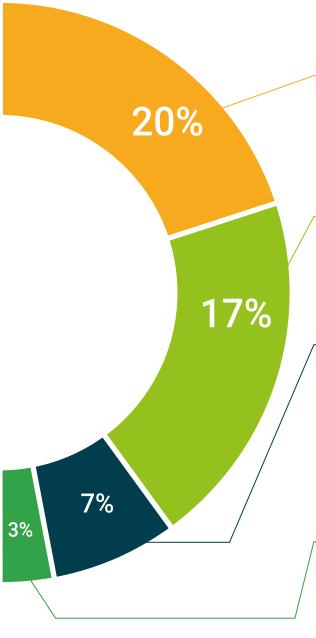
Observing an expert performing a task is the most effective way to learn. It is called Learning From an Expert: a proven way to reinforce knowledge and memory of what has been learned. That's why we include this type of learning in our courses through our masterclasses.

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.







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This **Postgraduate Diploma in Aquaculture Nutrition** contains the most complete and up to date scientific program on the market.

After the student has passed the evaluations, they will receive their corresponding certificate issued by TECH -Technological University

The diploma issued by TECH - Technological University will contain the qualification obtained and meets all the requirements commonly demanded by job exchanges, competitive examinations and professional career evaluation committees.

Title: Postgraduate Diploma in Aquaculture Nutrition

ECTS: 18

Official Number of Hours: 450



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

technological university



Postgraduate Diploma Aquaculture Nutrition

Course Modality: Online Duration: 6 months.

Qualification: TECH - Technological

University

18 ECTS Credits

Teaching Hours: 450 hours.

