

# Postgraduate Certificate

## Application of Analytical Techniques for Quality Control in the Food Industry



## Postgraduate Certificate Application of Analytical Techniques for Quality Control in the Food Industry

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

Website: [www.techtute.com/in/veterinary-medicine/postgraduate-certificate/application-analytical-techniques-quality-control-food-industry](http://www.techtute.com/in/veterinary-medicine/postgraduate-certificate/application-analytical-techniques-quality-control-food-industry)

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# 01

# Introduction

Quality control of processes and products is essential to ensure food safety and to guarantee Good Manufacturing and Elaboration Practices (GMP) in the processes carried out in the food industry. The student can take advantage of the opportunity and acquire a solid knowledge in this field that will allow them to become a successful professional.





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*Specialize in Application Analytical Techniques for Quality Control in the Food Industry to help protect the quality and safety of the food we eat”*

This Postgraduate Certificate provides in this training shows the tools that guarantee food safety, which are mandatory and under the responsibility of the producers, either by controls of the food industry's own laboratories or by outsourcing the service to food and reference laboratories for the control of raw materials and products.

Knowledge of the requirements to be met by laboratory facilities, personnel, techniques and equipment, quality parameters to be met in food, materials and processes susceptible to analysis according to regulations, accepted quality control indexes, analytical techniques required for each product and interpretation of results is of vital importance. Therefore, quality control in the food industry, through analytical tools and techniques, is essential in the monitoring of food batches in order to guarantee food safety, quality and safety, ensuring the continuous improvement of processes and products through integrated quality management.

The teachers of this Postgraduate Certificate are university professors and professionals from various disciplines in primary production, the use of analytical and instrumental techniques for quality control, the prevention of accidental and intentional contamination and fraud, regulatory schemes for food safety certification (Food Safety/ Food Integrity) and traceability (Food Defence and Food Fraud/Food Authenticity). They are experts in food legislation and regulations on quality and safety, validation of methodologies and processes, digitalization of quality management, research and development of new foods and finally, the coordination and execution of R&D&I projects.

It is an educational project committed to training high quality professionals. A program designed by professionals specialized in each specific subject who face new challenges every day.

This **Postgraduate Certificate in Application of Analytical Techniques in Quality Control in the Food Industry** contains the most complete and up-to-date scientific program on the market. The most important features of the program include:

- ♦ The development of case studies presented by experts in veterinary food safety.
- ♦ 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.
- ♦ News on Application of Analytical Techniques for Quality Control in the Food Industry
- ♦ Practical exercises where self-assessment can be used to improve learning.
- ♦ Special emphasis on innovative methodologies in the application of Analytical Techniques for Quality Control in the Food Industry.
- ♦ 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



*Do not miss the opportunity to take with us this Postgraduate Certificate in Application Analytical Techniques in Quality Control in the Food Industry. It's the perfect opportunity to advance your career"*

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*This Postgraduate Certificate is the best investment you can make in the selection of a refresher program to update your knowledge in Application of Analytical Techniques for Quality Control in the Food Industry"*

It includes, in its teaching staff, professionals belonging to the field of veterinary food safety, who pour into this training the experience of their work, in addition to recognized specialists from reference 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 professional must try to solve the different professional practice situations that arise during the program. For this, the professional will have the help of an innovative interactive video system made by recognized experts in Veterinary Medicine, with great experience.

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

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



# 02 Objectives

The Postgraduate Certificate in Application of Analytical Techniques in Quality Control in the Food Industry is oriented to facilitate the professional's performance with the latest and most innovative advances in the sector.







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*This is the best option to learn about the latest advances in Application of Analytical Techniques for Quality Control in the Food Industry"*



## General Objectives

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- Examine the regulations and standards for food laboratories and define their role in food safety
- Analyze food safety regulations and standards applicable to raw materials and products in food laboratories
- Determine the requirements to be met by food analysis laboratories (ISO IEC 17025 Standard, applicable to the accreditation and certification of quality systems in laboratories)
- Recognize the consumer's right to acquire safe, healthy and innocuous food from the agrifood chain, both nationally and internationally



*A path to achieve specialization and professional growth that will propel you towards a greater level of competitiveness in the job market"*





## Specific Objectives

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- Establish the quality characteristics to be met by raw materials, intermediate and finished products according to their origin, prior to their laboratory analysis
- Develop the relevant methodology for product conformity, taking into account the applicable requirements considered by the regulations and standards
- Define the most appropriate methodology for food quality assessment: integrity analysis and characterization, including the detection of biotic or abiotic food contaminants that may pose a health risk to consumers
- Describe food sampling depending on source, use and characteristics or specifications.
- Identify and recognize the analytical techniques used in food and manage an adequate quality control
- Describe the main agri-food contaminants and learn about the application of analytical techniques by observing the sector to which they belong
- Outline the process for identifying and ensuring the safety of raw materials, processed foods and the suitability of water in the production of safe products for food and feed

# 03

## Course Management

The program includes in its teaching staff leading experts in Veterinary Food Safety who bring to this training the experience of their work. Additionally, other recognized specialists participate in its design and preparation which means that the program is developed in an interdisciplinary manner.





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*Our team of teachers, experts in food safety, will help you achieve success in your profession”*

## Management



### Dr. Limón Garduza, Rocío Ivonne

- ♦ PhD in Agricultural Chemistry and Bromatology (Autonomous University of Madrid)
- ♦ Master's Degree in Food Biotechnology (MBTA) (University of Oviedo)
- ♦ Food Engineer, Bachelor's Degree in Food Science, and Technology (CYTA)
- ♦ Expert in Food Quality Management ISO 22000
- ♦ Specialist in Food Quality and Safety, Mercamadrid Training Center (CFM)

## Professors

### Ms. Aranda Rodrigo, Eloísa

- ♦ Degree in Food Science and Technology
- ♦ It develops its activity in the food production environment, with laboratory analysis of water and food
- ♦ Training in Quality Management Systems, BRC, IFS and ISO 22000 Food Safety
- ♦ Experience in audits under ISO 9001 and ISO 17025 protocols



# 04 Structure and Content

The content structure has been designed by the best professionals in the sector, with extensive experience and recognized prestige in the profession, backed by the volume of cases reviewed, studied and diagnosed, and with extensive knowledge of new technologies applied to food safety.





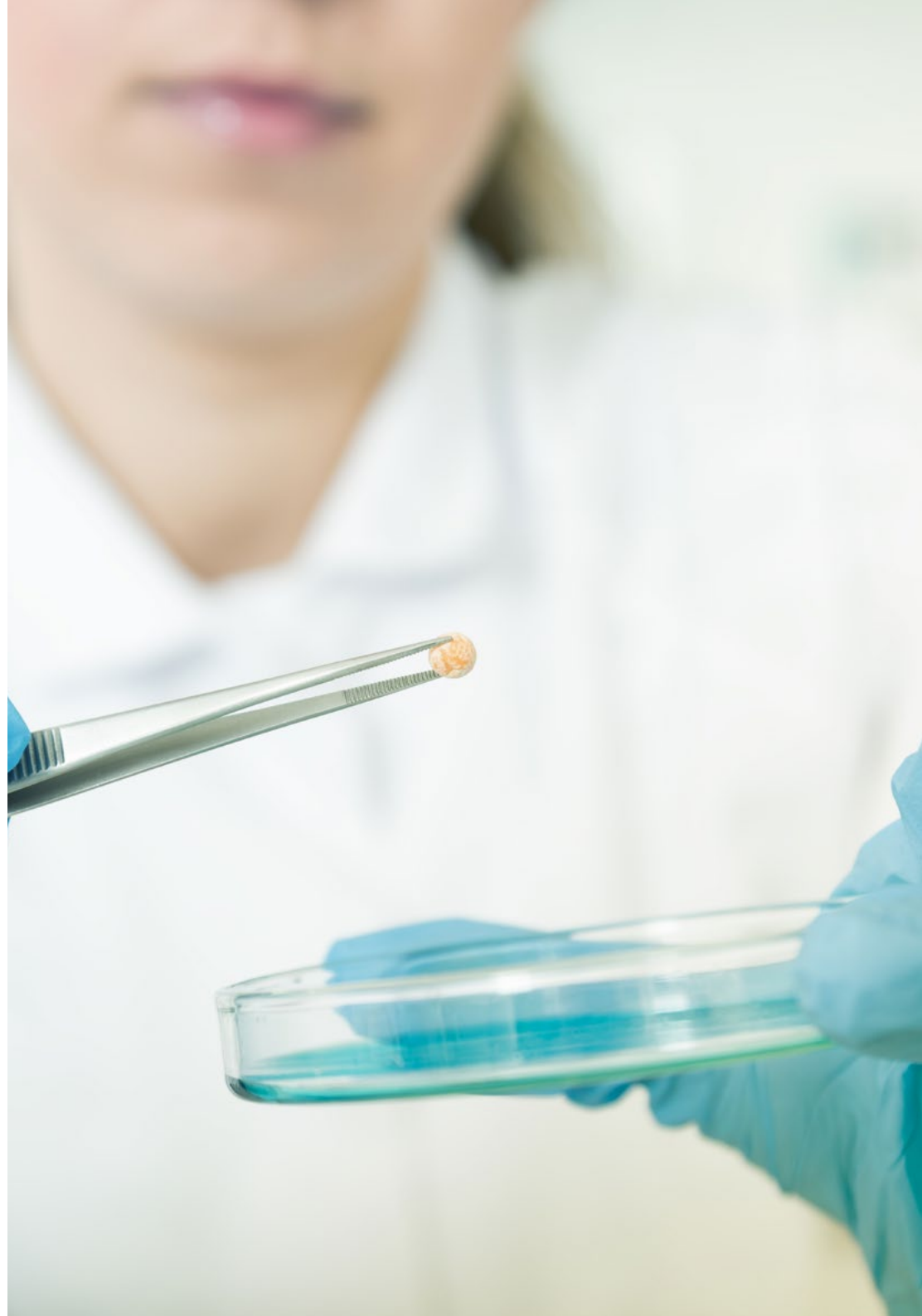


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*This Postgraduate Certificate in Application of Analytical Techniques in Quality Control in the Food Industry contains the most complete and up-to-date scientific program on the market”*

## Module 1. Analytical and Instrumental Techniques in Process and Product Quality Control

- 1.1. Laboratory Types, Regulations and Standards
  - 1.1.1. Reference Laboratories
    - 1.1.1.1. European Reference Laboratory
    - 1.1.1.2. National Reference Laboratories
  - 1.1.2. Food Laboratory
  - 1.1.3. Regulations and Standards Applicable to Laboratories (ISO/IEC 17025)
    - 1.1.3.1. General Requirements for Laboratory Competence
    - 1.1.3.2. Equipment Testing and Calibration
    - 1.1.3.3. Implementation and Validation of Analytical Methods
- 1.2. Official Control of the Agri-Food Chain
  - 1.2.1. PNCPA of the Agri-Food Chain
  - 1.2.2. Competent Authorities
  - 1.2.3. Legal Support for Official Control
- 1.3. Official Methods of Food Analysis
  - 1.3.1. Methods of Animal Feed Analysis
  - 1.3.2. Water Analysis Methods
    - 1.3.2.1. Analytical Requirements According to R.D. 140/2003
    - 1.3.2.2. Sampling Frequencies According to Type of Industry
  - 1.3.3. Methods of Analysis of Cereals
  - 1.3.4. Methods of Analysis of Fertilizers, Residues of Phytosanitary and Veterinary Products
  - 1.3.5. Methods of Analysis of Food Products
  - 1.3.6. Methods of Analysis of Meat Products
  - 1.3.7. Fat Analysis Methods
  - 1.3.8. Methods of Analysis of Dairy Products
  - 1.3.9. Methods of Analysis of Wines, Juices and Musts
  - 1.3.10. Methods of Analysis of Fishery Products
- 1.4. On-Site Analytical Techniques for Fresh Food Receiving, Processing and Finished Product
  - 1.4.1. In Food Handling
    - 1.4.1.1. Analysis of Environments and Surfaces
    - 1.4.1.2. Handler Analysis
    - 1.4.1.3. Equipment Analysis



- 1.4.2. Analysis of Fresh Feed and Finished Product
  - 1.4.2.1. Product Data Sheets
  - 1.4.2.2. visual Inspection
  - 1.4.2.3. Color Charts
  - 1.4.2.4. 2.4.2.4. Organoleptic Evaluation According to Food Type
- 1.4.3. Basic Physicochemical Analysis
  - 1.4.3.1. Determination of Maturity Index in Fruit
  - 1.4.3.2. Firmness
  - 1.4.3.3. Brix Degrees
- 1.5. Nutritional Analysis Techniques
  - 1.5.1. Protein Determination
  - 1.5.2. Determination of Carbohydrates
  - 1.5.3. Determination of Fats
  - 1.5.4. Ash Determination
- 1.6. Microbiological and Physicochemical Food Analysis Techniques
  - 1.6.1. Preparation Techniques: Fundamentals, Instrumentation and Application in Food Processing
  - 1.6.2. Microbiological Analysis
    - 1.6.2.1. Handling and Treatment of Samples for Microbiological Analysis
  - 1.6.3. Physical-Chemical Analysis
    - 1.6.3.1. Handling and Treatment of Samples for Physical-Chemical Analysis
- 1.7. Instrumental Techniques in Food Analysis
  - 1.7.1. Characterization, Quality Indexes and Product Conformity
    - 1.7.1.1. Food Safety/Food Integrity
  - 1.7.2. Analysis of Residues of Prohibited Substances in Food
    - 1.7.2.1. Organic and Inorganic Waste
    - 1.7.2.2. Heavy Metals
    - 1.7.2.3. Additives
  - 1.7.3. Analysis of Adulterant Substances in Foodstuffs
    - 1.7.3.1. Milk
    - 1.7.3.2. Wine
    - 1.7.3.3. Honey
- 1.8. Analytical Techniques Used in GMOs and Novel Foods
  - 1.8.1. Concept
  - 1.8.2. Detection Techniques
- 1.9. Emerging Analytical Techniques to Prevent Food Fraud
  - 1.9.1. Food Fraud
  - 1.9.2. Food Authenticity
- 1.10. Issuance of Certificates of Analysis
  - 1.10.1. In the Food Industry
    - 1.10.1.1. Internal Reporting
    - 1.10.1.2. Report to Customers and Suppliers
    - 1.10.1.3. Bromatological Expertise
  - 1.10.2. In Reference Laboratories
  - 1.10.3. In Food Laboratories
  - 1.10.4. In Arbitration Laboratories



*This training will allow you to advance  
in your career comfortably"*

# 05 Methodology

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

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





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

## At TECH we use the Case Method

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

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



According to Dr. Gérvas, the clinical case is the annotated presentation of a patient, or group of patients, which becomes a "case", an example or model that illustrates some peculiar clinical component, either because of its teaching power or because of its uniqueness or rarity. It is essential that the case is based on current professional life, in an attempt to recreate the actual conditions in a veterinarian's professional practice.

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*Did you know that this method was developed in 1912, at Harvard, for law students? The case method consisted of presenting students with real-life, complex situations for them to make decisions and justify their decisions on how to solve them. In 1924, Harvard adopted it as a standard teaching method”*

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

1. Veterinarians who follow this method not only manage to assimilate concepts, but also develop their mental capacity through exercises to evaluate real situations and knowledge application
2. Learning is solidly translated into practical skills that allow the student to better integrate into the real world.
3. Ideas and concepts are understood more efficiently, given that the example situations are based on real-life.
4. The feeling that the effort invested is effective becomes a very important motivation for veterinarians, which translates into a greater interest in learning and an increase in the time dedicated to working on the course.



## Relearning Methodology

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

This university is the first in the world to combine the study of clinical cases with a 100% online learning system based on repetition, combining a minimum of 8 different elements in each lesson, a real revolution with respect to the mere study and analysis of cases.



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



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 more than 65,000 veterinarians have been trained with unprecedented success in all clinical specialties, regardless of the surgical load. Our teaching method is developed in a highly demanding environment, where the students have a high socio-economic profile and an average age of 43.5 years.

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

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

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



This program offers the best educational material, prepared with professionals in mind:



#### Study Material

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

These contents are then applied to the audiovisual format, to create the TECH online working method. All this, with the latest techniques that offer high-quality pieces in each and every one of the materials that are made available to the student.



#### Latest Techniques and Procedures on Video

TECH introduces students to the latest techniques, the latest educational advances and to the forefront of current and procedures of veterinary techniques. All of this in direct contact with students and explained in detail so as to aid their assimilation and understanding. And best of all, you can watch the videos as many times as you like.



#### Interactive Summaries

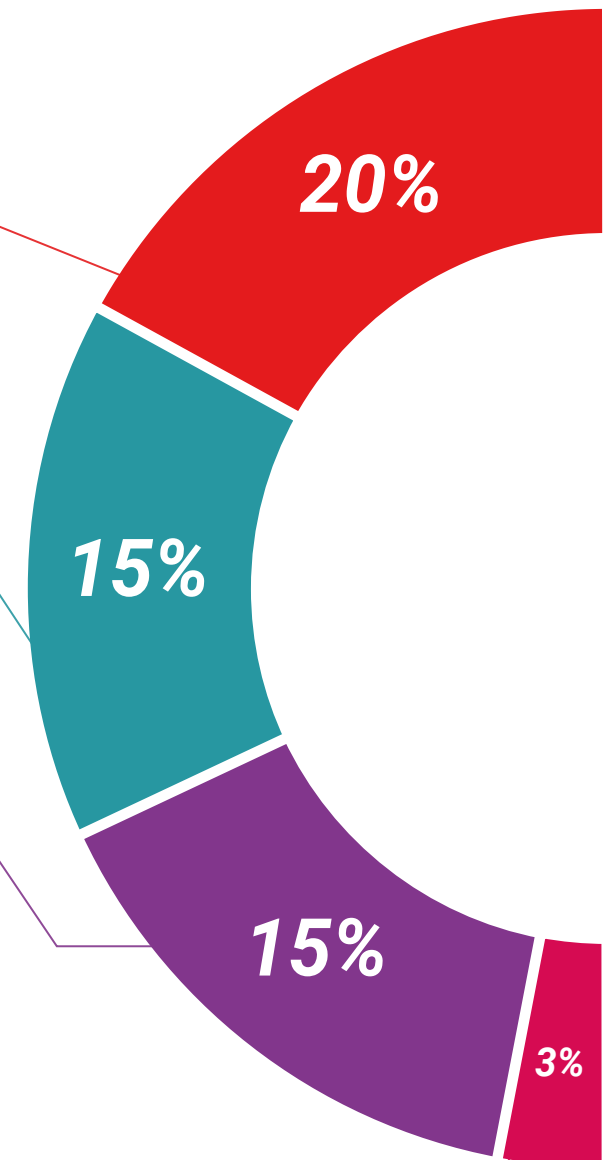
The TECH team presents the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

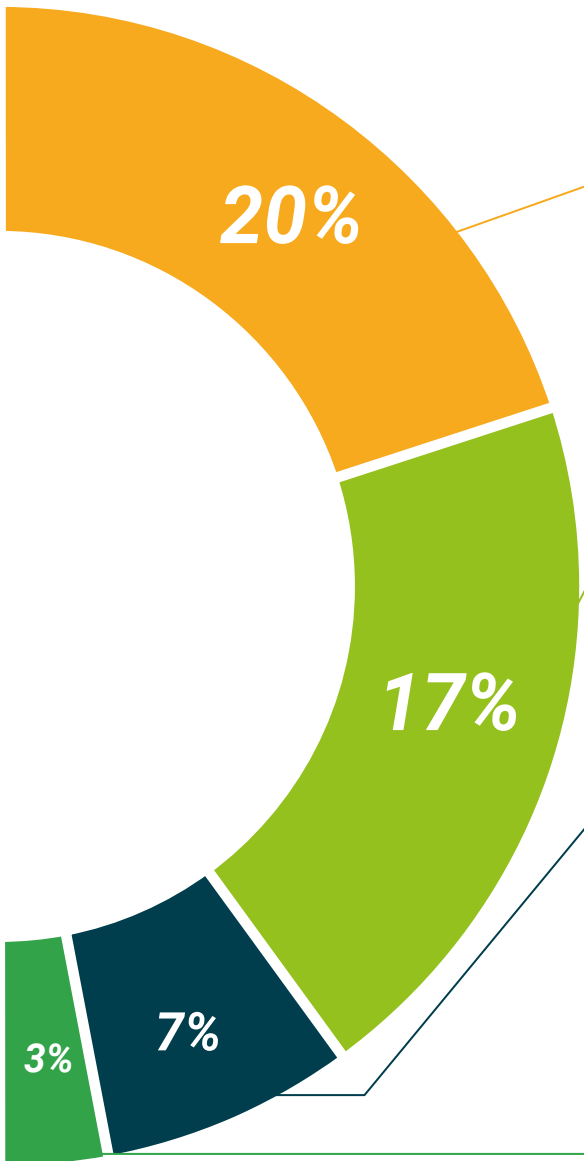
This exclusive educational system for presenting multimedia content was awarded by Microsoft as a "European Success Story".



#### Additional Reading

Recent articles, consensus documents and international guidelines, among others. In TECH's virtual library, students will have access to everything they need to complete their course.





#### Expert-Led Case Studies and Case Analysis

Effective learning ought to be contextual. Therefore, TECH presents real cases in which the expert will guide students, focusing on and solving the different situations: a clear and direct way to achieve the highest degree of understanding.



#### Testing & Retesting

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



#### Classes

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

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



#### Quick Action Guides

TECH offers the most relevant contents of the course in the form of worksheets or quick action guides. A synthetic, practical, and effective way to help students progress in their learning.



# 06 Certificate

The Postgraduate Certificate Application of Analytical Techniques in in Quality Control in Food La Industries guarantees, in addition to the most rigorous and up-to-date training, access to a Postgraduate Certificate Diploma issued by TECH Technological University.



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*Successfully complete this training program  
and receive your university certificate  
without travel or laborious paperwork”*

This **Postgraduate Certificate in Application of Analytical Techniques in Quality Control in the Food Industry** 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 job markets, competitive examinations and professional career evaluation committees.

Title: **Postgraduate Certificate in Application of Analytical Techniques for Quality Control in the Food Industry**  
Official N° of Hours: 150 h.



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

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

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