

# Postgraduate Certificate

## Structure and Operation of Food Industries





## Postgraduate Certificate Structure and Operation of Food Industries

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

Website: [www.techtute.com/us/nutrition/postgraduate-certificate/structure-operation-food-industries](http://www.techtute.com/us/nutrition/postgraduate-certificate/structure-operation-food-industries)

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# 01

# Introduction

New developments within the food industry have led to the implementation of more efficient automation processes and, therefore, increased production. In addition, consumer habits have also changed and in order to adapt to these changes it is essential to have professionals specialized in the new structures that are being adapted in this sector, as well as the functions they fulfill within the market. All this will be possible through this academic program that is focused on providing its participants with a broad view of the close relationship between food and public health and this in a 100% online way, a benefit that will allow students to have greater control over their time.



“

*Understanding the Structure and Functioning of the Food Industries is a highly valuable element, but being the best within it is the best opportunity to elevate your career and with this degree that will be possible”*

This Postgraduate Certificate program is focused on providing its participants with the most updated knowledge on the way food companies are constituted and the ways in which they work. In this way, students will gain a broad overview of the challenges and dynamics of this field.

During the course of the program, the student will be able to analyze the most relevant elements about the influence that eating habits have on public health, as well as the diseases that can be spread by poor food handling. In this way, you will be able to develop specialized thinking that will allow you to create strategies for the prevention and control of risk factors within the food industry.

In addition, you will learn in depth about the products that make up the food market, analyzing in depth their benefits, nutrients and components, in order to master the proper handling techniques for each one. With this, the student will be able to perfect his skills and use efficient tools that will allow him to understand in depth the functioning of the companies in this sector that is in constant growth.

This program is presented through the innovative Relearning methodology, which allows 100% online learning, giving students the flexibility to learn from any location and at the time that best suits them. They will also have access to multimedia resources 24 hours a day, allowing them to assimilate the content at their own pace. In addition, through the analysis of case studies, participants will develop problem-solving skills when confronted with simulations of a realistic environment.

This **Postgraduate Certificate in Structure and Operation of Food Industries** contains the most complete and up-to-date scientific program on the market. The most important features include:

- ◆ The development of case studies presented by experts in Food Industry Structure and Operation
- ◆ The graphic, schematic, and practical contents with which they are created, provide scientific and practical information on the disciplines that are essential for professional practice
- ◆ Practical exercises where self-assessment can be used to improve learning
- ◆ Its special emphasis on innovative methodologies
- ◆ 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



*With TECH, you will be able to acquire a comprehensive skill set and excel in the Food Industry sector”*

“

*This degree will allow you to have a broad knowledge of the characteristics of cereals, dairy meats and vegetables, with the objective of understanding their functions within the industry”*

The program's teaching staff includes professionals from sector who contribute their work experience to this educational program, as well as renowned specialists from leading societies and prestigious universities.

Its 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 an immersive education programmed to learn in real situations.

The design of this program focuses on Problem-Based Learning, by means of which the professional must try to solve the different professional practice situations that are presented throughout the academic course. For this purpose, the student will be assisted by an innovative interactive video system created by renowned experts.

*Thanks to the fact that the contents are at the forefront of the market, you will be able to focus your competencies on the current market context.*

*Access 100% online to multimedia resources that have been prepared especially for you.*



# 02 Objectives

The main objective of this educational program is to provide students with the latest developments in the Food Industry, equipping them with an in-depth knowledge of the essential aspects of the functioning and structure of the Food Industry. In this way, students will be prepared to face the challenges of this market and learn in depth the way it works. All this will be achieved through the study of multimedia content that will strengthen the skills of the participants.





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*A Postgraduate Certificate program that will allow you to improve your skills and broaden your outlook on current events in the food industry”*



## General Objectives

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- ◆ Acquire basic knowledge of epidemiology and prophylaxis
- ◆ To know and distinguish the physicochemical parameters that affect microbial growth in foods
- ◆ Identify the differential nature of acellular organisms (viruses, viroids and prions) in terms of their structure and mode of replication, with respect to eukaryotic and prokaryotic cell models



*The mix of the best multimedia content and the most innovative methodology on the market will be the perfect cocktail to intoxicate you with knowledge”*





## Specific Objectives

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- ◆ To know the distinguishing fact of human nutrition, interrelationships between nature and culture
- ◆ Acquire a good understanding of individual and social eating behaviors
- ◆ Know the fundamentals and general systems of disease prevention, health promotion and protection, as well as the etiologies and epidemiological factors relating to foodborne diseases
- ◆ Identify health problems associated with the use of food additives
- ◆ Appreciate and recognize the sanitary and preventive importance of cleaning, disinfection, disinsecting and pest control programs in the food chain
- ◆ Classify the main social and economic implications of zoonoses
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- ◆ Classify the main social and economic implications of zoonoses

# 03

# Structure and Content

The curriculum of this Postgraduate Certificate has been created by recognized experts in the Food Industry, in order to provide students with a high quality education. In this way, participants will have the opportunity to acquire in-depth knowledge of how companies in this sector operate and the structure they implement. This will be achieved through the use of multimedia resources and the analysis of case studies, which will allow our students to develop outstanding professional skills in this field.



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*Integrate all the knowledge you will gain from the curriculum and hone your skills to a high level”*

## Module 1. Food and Public Health

- 1.1. Human Nutrition and Historical Evolution
  - 1.1.1. The Natural Element and the Cultural Element Biological Evolution, Tool Handling and Tool Making
  - 1.1.2. The Use of Fire, Hunter-Gatherer Profiles Meat eater or vegetarian
  - 1.1.3. Biological, Genetic, Chemical and Mechanical Technologies Involved in Food Processing and Preservation
  - 1.1.4. Food in Roman Times
  - 1.1.5. Influence of the Discovery of America
  - 1.1.6. Food in Developed Countries
    - 1.1.6.1. Food Distribution Chains and Networks
    - 1.1.6.2. The Global Trade "Network" and Small Businesses
- 1.2. Socio-Cultural Significance of Food
  - 1.2.1. Food and Social Communication Social Relationships and Individual Relationships
  - 1.2.2. Emotional Influence of Foods Parties and celebrations
  - 1.2.3. Relationships Between Diets and Religious Precepts Food and Christianity, Hinduism, Buddhism, Judaism, Islam
  - 1.2.4. Natural Foods, Ecological Foods, and Organic Foods
  - 1.2.5. Typology of Diets: The Standard Diet, Slimming Diets, Curative Diets, Magical Diets and Absurd Diets
  - 1.2.6. Food Reality and Food Perception Protocol for Family and Institutional Meals
- 1.3. Communication and Eating Behavior
  - 1.3.1. Written Media: Specialist Magazines Informative Magazines and Professional Journals
  - 1.3.2. Audiovisual Media: Radio, Television, Internet; Packaging; Advertising
  - 1.3.3. Eating Behavior: Motivation and ingestion
  - 1.3.4. Food Labeling and Consumption: Development of Likes and Dislikes
  - 1.3.5. Sources of Variation in Food Preferences and Attitudes
- 1.4. Concept of Health and Diseases and Epidemiology
  - 1.4.1. Health Promotion and Disease Prevention
  - 1.4.2. Niveles de prevención. Laws of Public Health
  - 1.4.3. Food Characteristics Food as a Vehicle for Disease
  - 1.4.4. Epidemiological Methods: Descriptive, Analytical, Experimental, Predictive





- 1.5. Sanitary, Social and Economic Significance of Zoonoses
  - 1.5.1. Zoonosis classification
  - 1.5.2. Factors
  - 1.5.3. Assessment Criteria
  - 1.5.4. Action Plans:
- 1.6. Epidemiology and Prevention of Diseases Transmitted by Meat and Meat By-Products and Fish and Fish By-Products
  - 1.6.1. Introduction. Epidemiological Factors of Meat-Borne Diseases
  - 1.6.2. Consumer diseases
  - 1.6.3. Preventive Measures for Diseases Transmitted by Meat Products
  - 1.6.4. Introduction. Epidemiological Factors of Fish Borne Diseases
  - 1.6.5. Consumer diseases
  - 1.6.6. Prevention
- 1.7. Epidemiology and Prevention of Diseases Transmitted by Milk and Milk By-Products
  - 1.7.1. Introduction. Epidemiological Factors of Meat-Borne Diseases
  - 1.7.2. Consumer diseases
  - 1.7.3. Preventive Measures for Diseases Transmitted by Dairy Products
- 1.8. Epidemiology and Prevention of Diseases Transmitted by Bread, Pastries, Confectionery and Cakes
  - 1.8.1. Introduction. Epidemiological factors
  - 1.8.2. Consumer diseases
  - 1.8.3. Prevention
- 1.9. Epidemiology and Prevention of Diseases Transmitted by Preserved and Semi-Preserved Foods, and by Edible Vegetables and Mushrooms
  - 1.9.1. Introduction. Epidemiological Aspects of Preserved and Semi-Preserved Foods
  - 1.9.2. Epidemiological Aspects of Preserved and Semi-Preserved Foods
  - 1.9.3. Sanitary Prevention of Diseases Transmitted by Preserved and Semi-Preserved Foods
  - 1.9.4. Introduction. Epidemiological Aspects of Vegetables and Mushrooms
  - 1.9.5. Diseases Caused by Consumption of Vegetables, and Mushrooms
  - 1.9.6. Sanitary Prevention of Diseases Transmitted by Vegetables and Mushrooms
- 1.10. Health Problems Arising from the Use of Additives, Source of Food Poisoning
  - 1.10.1. Naturally Occurring Toxins in Food
  - 1.10.2. Toxins Due to Incorrect Handling
  - 1.10.3. Use of Food Additives

## Module 2. Food Industry

- 2.1. Cereals and by-products I
  - 2.1.1. Cereals: production and consumption
    - 2.1.1.1. Classification of cereals
    - 2.1.1.2. Current state of research and industry situation
  - 2.1.2. Cereal grain basics
    - 2.1.2.1. Methods and equipment for the characterization of flours and doughs
    - 2.1.2.2. Rheological properties during kneading, proofing and baking
  - 2.1.3. Cereal products: Ingredients, additives and coadjuvants. Classification and effects
- 2.2. Cereals and by-products II
  - 2.2.1. Baking process: Stages, changes produced and equipment used
  - 2.2.2. Instrumental, sensory and nutritional characterization of cereal-derived products from cereals
  - 2.2.3. Application of cold in the bakery. Frozen precooked breads. Process and product quality
  - 2.2.4. Gluten-free products derived from cereals. Formulation, process and quality characteristics
  - 2.2.5. Food pastes. Ingredients and process. Types of pastes
  - 2.2.6. Innovation in bakery products. Trends in product design
- 2.3. Milk and dairy products. Eggs and egg products I
  - 2.3.1. Hygienic-sanitary milk quality
    - 2.3.1.1. Source and levels of contamination. Initial and contaminating microbiota
    - 2.3.1.2. Presence of chemical contaminants: residues and pollutants
    - 2.3.1.3. Influence of hygiene in the milk production and marketing chain
  - 2.3.2. Dairy production. Milk synthesis
    - 2.3.2.1. Factors influencing milk composition: extrinsic and intrinsic factors
    - 2.3.2.2. Milking: good process practices
  - 2.3.3. On-farm milk pretreatment: filtration, refrigeration and alternative preservation methods
  - 2.3.4. Treatments in the dairy industry: clarification and bacto-fugation, skimming, standardization, homogenization, deaeration. Pasteurization. Definition. Definition
    - 2.3.4.1. Types of pasteurizers. Packaging. Quality Control Sterilization. Definition







- 2.3.4.2. Methods: conventional, UHT, other systems. Packaging. Quality control  
Manufacturing defects
- 2.3.4.3. Types of pasteurized and sterilized milk. Milk selection. Milkshakes and  
flavored milks. Mixing process. Enriched milks. Enrichment process
- 2.3.4.4. Evaporated milk. Condensed milk
- 2.3.5. Preservation and packaging systems
- 2.3.6. Quality control of powdered milk
- 2.3.7. Milk packaging and quality control systems
- 2.4. Milk and dairy products. Eggs and egg products I
  - 2.4.1. Dairy Derivatives. Creams and Butters
  - 2.4.2. Elaboration process. Continuous manufacturing methods. Packaging and  
preservation. Manufacturing defects and alterations
  - 2.4.3. Fermented milks: Yogurt. Milk preparatory treatments. Manufacturing processes  
and systems
    - 2.4.3.1. Types of yogurt. Problems in the elaboration. Quality Control
  - 4.3.2. BIO products and other acidophilic milks
  - 2.4.4. Cheese making technology: preparatory milk treatments
    - 2.4.4.1. Obtaining curd: syneresis. Pressed. Salado
    - 2.4.4.2. Water activity in cheese. Brine control and conservation
    - 2.4.4.3. Cheese ripening: agents involved. Factors that determine maturation.  
Effects of contaminating biota
    - 2.4.4.4. Toxicological problems of cheese
  - 2.4.5. Additives and antifungal treatments
  - 2.4.6. Ice cream. Features. Types of ice cream. Elaboration processes
  - 2.4.7. Eggs and egg products
    - 2.4.7.1. Fresh egg: processing of fresh egg as a raw material for the production of  
egg products
    - 2.4.7.2. Egg products: liquids, frozen and dehydrated
- 2.5. Vegetable products I
  - 2.5.1. Physiology and postharvest technology. Introduction
  - 2.5.2. Fruit and vegetable production, the need for postharvest conservation
  - 2.5.3. Respiration: respiratory metabolism and its influence on postharvest preservation  
and deterioration of vegetables

- 2.5.4. Ethylene: synthesis and metabolism. Involvement of ethylene in the regulation of fruit ripening
- 2.5.5. Fruit ripening: The maturation process, generalities and its control
  - 2.5.5.1. Climacteric and non-climacteric ripening
  - 2.5.5.2. Compositional changes: physiological and biochemical changes during ripening and preservation of fruits and vegetables
- 2.6. Vegetable Products II
  - 2.6.1. Principle of fruit and vegetable preservation through the control of environmental gases. Mode of action and its applications in the preservation of fruits and vegetables
  - 2.6.2. Refrigerated storage. Temperature control in the preservation of fruits and vegetables
    - 2.6.2.1. Technological methods and applications
    - 2.6.2.2. Cold damage and its control
  - 2.6.3. Transpiration: control of water loss in fruit and vegetable preservation
    - 2.6.3.1. Physical Principles. Control systems
  - 2.6.4. Postharvest pathology: main deteriorations and rots during fruit and vegetable preservation. Control systems and methods
  - 2.6.5. IV Range Products
    - 2.6.5.1. Physiology of plant products: handling and preservation technologies
- 2.7. Vegetable Products III
  - 2.7.1. Preparation of canned vegetables: Overview of a typical canning line for vegetables
    - 2.7.1.1. Examples of the main types of canned vegetables and pulses
    - 2.7.1.2. New products of vegetable origin: cold soups
    - 2.7.1.4. Overview of a typical fruit packaging line
  - 2.7.2. Juice and nectar processing: juice extraction and juice treatments
    - 2.7.2.1. Aseptic processing, storage and packaging systems
    - 2.7.2.2. Examples of production lines for the main types of juices
    - 2.7.2.3. Production and preservation of semi-finished products: cremogenated products
  - 2.7.3. Production of jams, jellies and jams: production and packaging process
    - 2.7.3.1. Examples of characteristic processing lines
    - 2.7.3.2. Additives used in the manufacture of jams and marmalades





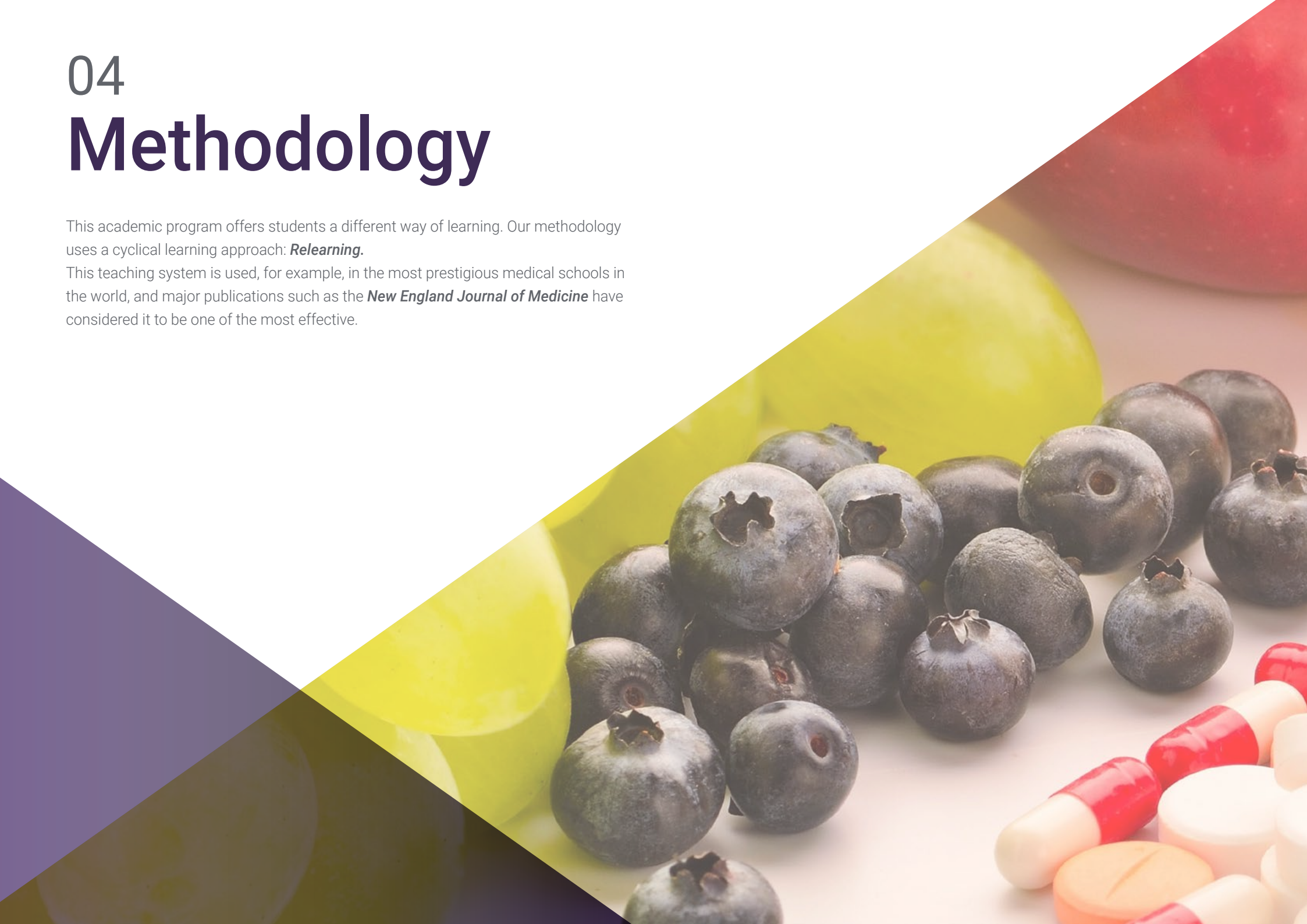
- 2.8. Alcoholic beverages and oils
  - 2.8.1. Alcoholic beverages: Wine. Elaboration process
    - 2.8.1.1. Beer: brewing process. Types
    - 2.8.1.2. Spirits and liquors: Manufacturing processes and types
  - 2.8.2. Oils and fats: Introduction
    - 2.8.2.1. Olive oil: Olive oil extraction system
    - 2.8.2.2. Oilseed oils. Extraction
  - 2.8.3. Animal fats: Refining of fats and oils
- 2.9. Meat and meat by-products
  - 2.9.1. Meat industry: Production and consumption
  - 2.9.2. Classification and functional properties of muscle proteins: Myofibrillar, sarcoplasmic and stromal proteins
    - 2.9.2.1. Muscle-to-meat conversion: porcine stress syndrome
  - 2.9.3. Maturation of meat. factors affecting the quality of meat for direct consumption and industrialization
  - 2.9.4. Curing chemistry: ingredients, additives and curing aids
    - 2.9.4.1. Industrial curing processes: dry and wet curing processes
    - 2.9.4.2. Nitrite alternatives
  - 2.9.5. Raw and raw marinated meat products: fundamentals and problems of preservation. Characteristics of raw materials
    - 2.9.5.1. Types of products. Manufacturing operations
    - 2.9.5.2. Alterations and defects
  - 2.9.6. Cooked sausages and cooked hams: basic principles of meat emulsion preparation. Characteristics and selection of raw materials
    - 2.9.6.1. Technological manufacturing operations. Industrial systems
    - 2.9.6.2. Alterations and defects
- 2.10. Seafood
  - 2.10.1. Fish and seafood. Features of technological interest
  - 2.10.2. Main industrial fishing and shellfishing gears
    - 2.10.2.1. Unit operations in fish technology
    - 2.10.2.2. Cold storage of fish
  - 2.10.3. Salting, pickling, drying and smoking: technological aspects of manufacture
    - 2.10.3.1. Characteristics of the final product. Performance
  - 2.10.4. Marketing

04

# 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

In a given situation, what should a professional do? Throughout the program, students will face multiple simulated clinical cases, based on real patients, in which they will have to do research, establish hypotheses, and ultimately 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, nutritionists 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 power 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 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. Learning is solidly translated into practical skills that allow the nutritionist to better integrate 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.



## Relearning Methodology

At TECH we enhance the 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.

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

With this methodology, more than 45,000 nutritionists have been trained 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.

*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.



#### Nutrition Techniques and Procedures on Video

TECH brings students closer to the latest techniques, the latest educational advances and to the forefront of current nutritional counselling techniques and procedures. 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

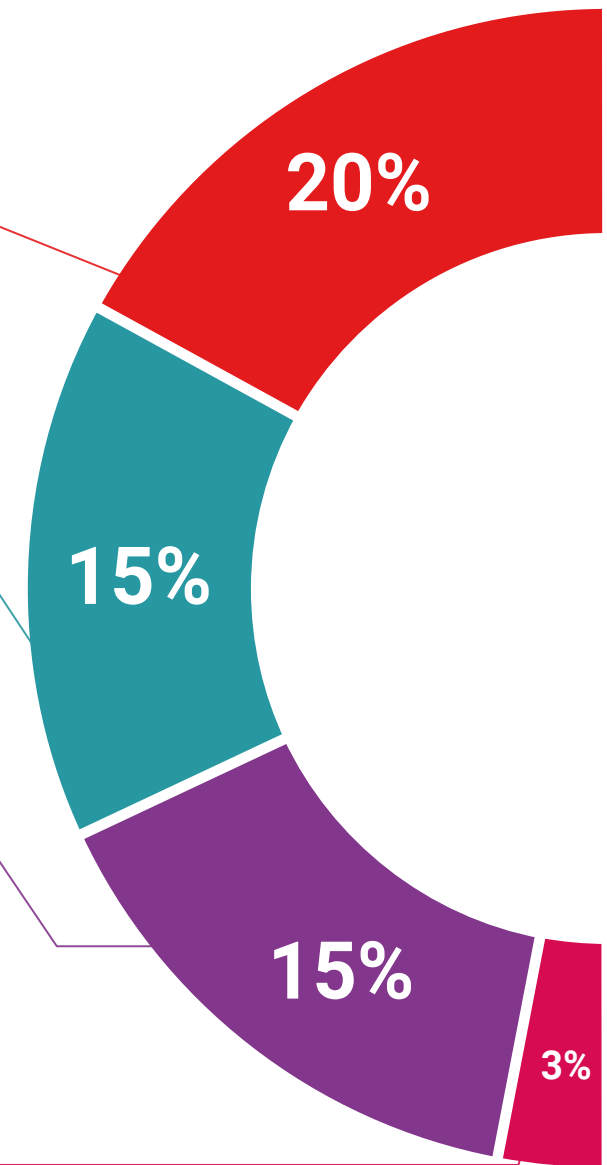
The TECH team presents the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

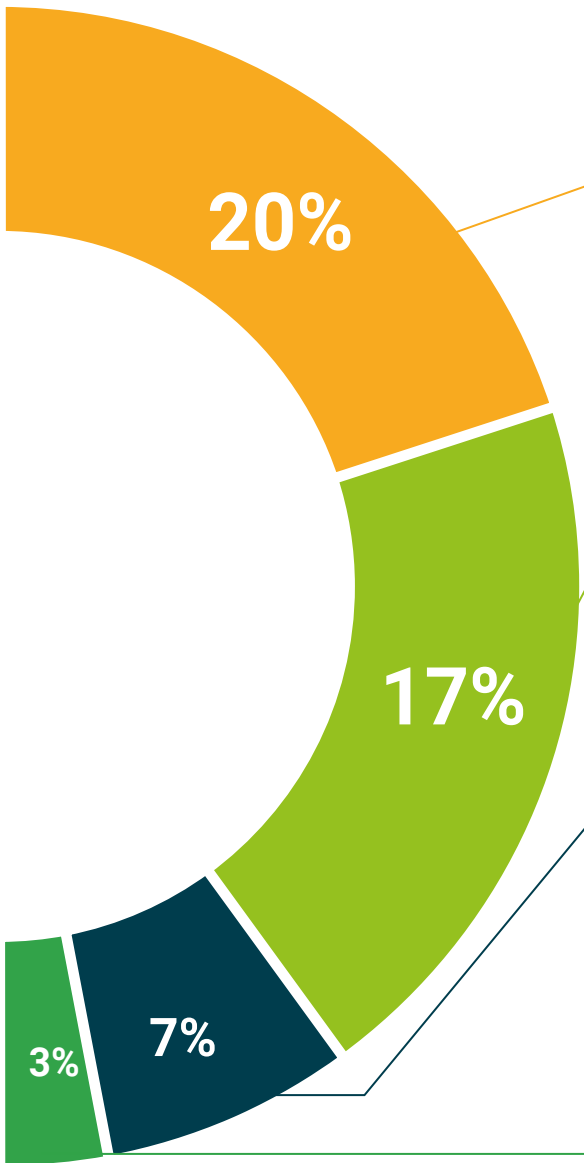
This exclusive educational system for presenting multimedia content was awarded by Microsoft as a "European Success Story".



#### 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.



05

# Certificate

The Postgraduate Certificate in Structure and Operation of Food Industries guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Certificate issued by TECH Technological University.





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

This **Postgraduate Certificate in Structure and Operation of Food Industries** 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 diploma 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 Certificate in Structure and Operation of Food Industries**

Official N° of hours: **150 h.**



\*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.

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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