

# Postgraduate Diploma

## Microbiology in the Food Industry



## Postgraduate Diploma Microbiology in the Food Industry

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

Website: [www.techtute.com/us/nutrition/postgraduate-diploma/postgraduate-diploma-microbiology-food-industry](http://www.techtute.com/us/nutrition/postgraduate-diploma/postgraduate-diploma-microbiology-food-industry)

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# 01

# Introduction

Although the hygienic measures used in the treatment of food have increased in the food industry, there continue to be outbreaks of salmonellosis, cases of people affected by diarrhea caused by E. coli or spread of rotavirus. A fact that affects the health of people and on which work is continually being done in the field of microbiology. This knowledge is equally relevant for the nutrition professional who must be aware of where bacteria are found in food and how it can affect their intake. For this reason, this institution has created this program in which, in only 6 months, the specialists will obtain the most important information about the techniques of detection of microorganisms in food, its benefits, risk factors and diseases caused by poor hygiene. All this in a 100% online teaching and with the most innovative didactic resources.





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*This Postgraduate Diploma provides you with the most current vision on Microbiology in the Food Industry”*

Scientific research has advanced the understanding of the functioning of microorganisms in humans, whether affected by disease-causing bacteria or with the use of these microorganisms in the production of probiotics or food supplements.

Given the effects of food on the health and well-being of people, these advances have driven the increase of safety and hygienic measures in the food industry. In this scenario, the Nutrition professionals must have a wide knowledge about the characteristics of food, its action as a vehicle of diseases or the promotion of healthy habits. A relevant task that requires continuous updating, which the nutritionist will be able to achieve through this Postgraduate Diploma.

A program where students have at their disposal the most innovative pedagogical tools (video summaries, detailed videos, diagrams) that will allow them to strengthen their knowledge of microbiology and be aware of the latest techniques used for the isolation and preservation of microorganisms. It will also delve into the progress of epidemiology and the prevention of foodborne diseases.

In addition, the case studies, provided by the specialists who are part of this program, will bring students closer to situations that they may encounter in their daily practice and whose methods they will be able to integrate easily.

A 100% online qualification that provides the nutritionists with the ease of being able to study it comfortably, wherever and whenever they want. They will only need an electronic device (computer, tablet or cell phone) with Internet access to view the syllabus of this program. Thus, students are faced with a modality in accordance with the current times, compatible with the most demanding responsibilities.

This **Postgraduate Diploma in Microbiology in the Food Industry** 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 Technology
- 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 the self-assessment process can be carried out 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



*Easily immerse yourself in foodborne microbial diseases from your computer whenever you want”*

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*TECH has employed the latest technology in the teaching tools that are available to you 24 hours a day”*

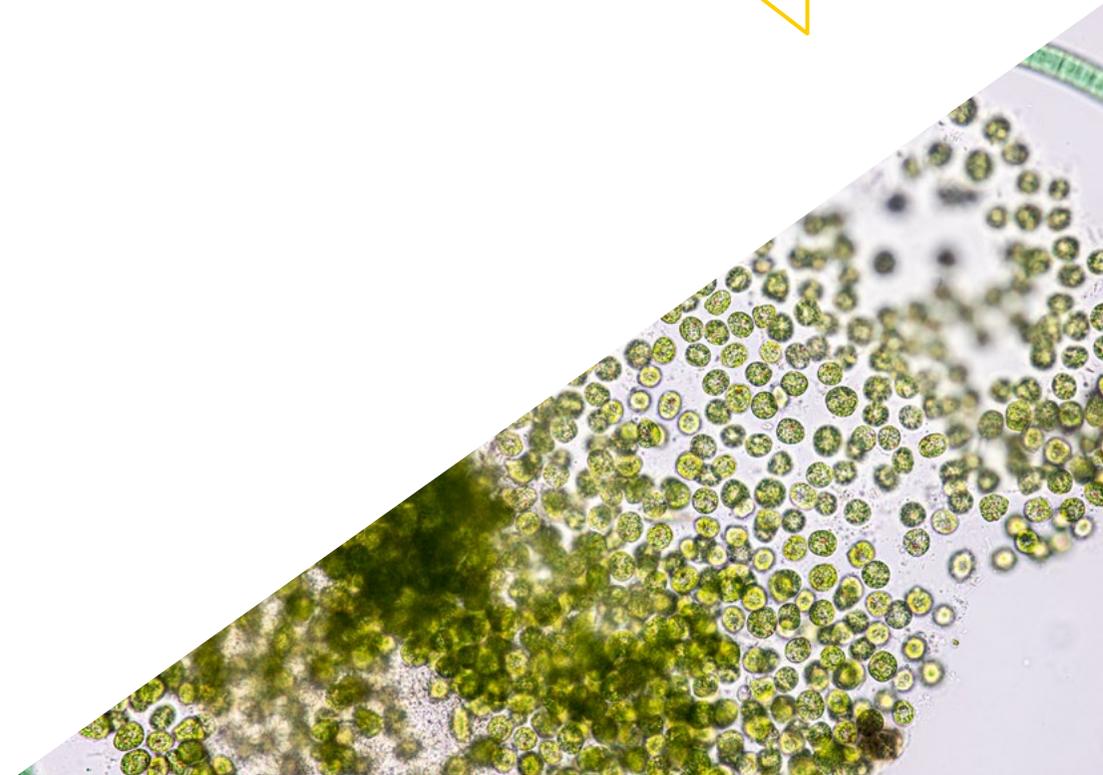
*Deepen with this Postgraduate Diploma in the latest studies on the microbiota and the benefits on people's health.*

*Access a university qualification that will bring you up to date on the use of microorganisms as food supplements.*

The program's teaching staff includes professionals from the 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 professionals 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 professionals must try to solve the different professional practice situations that are presented throughout the academic course. For this purpose, the students will be assisted by an innovative interactive video system created by renowned experts.



# 02 Objectives

The Nutrition professionals who enters this Postgraduate Diploma will acquire the most updated knowledge about the health problems caused by the incorrect handling of food, the lack of hygiene, as well as the existing problems in the use of additives. These goals will be easier to achieve thanks to the multimedia resources that you will be able to access 24 hours a day and elaborated by the specialists who are part of this program.





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*This Postgraduate Diploma will allow you to learn the latest techniques used for the prevention of diseases transmitted by vegetables and mushrooms”*



## General Objectives

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- Know the mechanisms of food preservation and know how to prevent microbial spoilage of food
- Know how to identify and differentiate the main elements causing foodborne pathologies: microorganisms, toxins, viruses and parasites
- 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





## Specific Objectives

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### Module 1. Fundamentals of Microbiology

- ♦ Recognize the levels of organization of prokaryotic and eukaryotic microorganisms, as well as to relate their main structures to their function
- ♦ Understand the basis of microbial pathogenicity and the defense mechanisms of the human body against existing pathogens
- ♦ Point out the main techniques and strategies for the inhibition, destruction or elimination of microbial populations
- ♦ Understand and interrelate the main mechanisms of genetic exchange in microorganisms and their application in food biotechnology

### Module 2. Microbiology and Food Hygiene

- ♦ Learn the main transformative, pathogenic and beneficial microorganisms in food
- ♦ Establish the beneficial effects of microorganisms in the field of food
- ♦ Identify and understand the most important elements of a microbiology laboratory
- ♦ Evaluate the beneficial effects of microorganisms in foods
- ♦ Learn and apply techniques for the detection of microorganisms in food

### Module 3. Food and Public Health

- ♦ 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
- ♦ Classify the main social and economic implications of zoonoses



*Thanks to the Relearning method, used by TECH in its programs, you will be able to reduce the long hours of study”*

# 03

# Structure and Content

The syllabus of this university program has been designed to provide the Nutrition professionals with the most recent knowledge on microbiology, the relevance of microbiology in society, the existing concern about the transmission of diseases through meat or dairy products, as well as the natural toxins existing in food. All this with a Relearning system, which will allow you to advance in a much more natural way through the syllabus and even reduce the long hours of study.





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*A syllabus that will allow you to deepen with multimedia material on the main techniques in food microbiology and epidemiology”*

## Module 1. Fundamentals of Microbiology

- 1.1. Introduction to Microbiology
  - 1.1.1. Concept of Microbiology and Historical Aspects
  - 1.1.2. Prokaryotic Cell Model
    - 1.1.2.1. Morphological
    - 1.1.2.2. Structure and Function
  - 1.1.3. Relevance of Microorganisms in Society
- 1.2. Observation of Microorganisms. Microscopy and Staining
  - 1.2.1. Basic Concepts of Microscopy
  - 1.2.2. Types of Microscopes: Structure and Function
    - 1.2.2.1. Optical Microscope
    - 1.2.2.2. Electronic Microscope
    - 1.2.2.3. Fluorescence Microscope
  - 1.2.3. Types of Staining Most Commonly Used in Microbiology
    - 1.2.3.1. Grams Stain
    - 1.2.3.2. Endospore Staining
    - 1.2.3.3. Acid Fast Bacillus Alcohol Resistant (BAR) staining
- 1.3. Microbial Growth and control
  - 1.3.1. Types of Metabolism in Prokaryotes
  - 1.3.2. Bacterial Growth Curve
  - 1.3.3. Isolation and Conservation Techniques of Microorganisms
  - 1.3.4. Factors Affecting Microbial Growth
    - 1.3.4.1. Bacteriostatic and Bactericidal Agents
    - 1.3.4.2. Environmental Agents
- 1.4. Bacterial Genetics and Taxonomy
  - 1.4.1. Mechanisms of Genetic Exchange
    - 1.4.1.1. Transformation
    - 1.4.1.2. Conjugation
    - 1.4.1.3. Transduction and Bacteriophages
  - 1.4.2. Mutations in the Bacterial Genome
  - 1.4.3. Basic concepts of Systematics and Classification
  - 1.4.4. Bacterial Classification Methods



- 1.5. Pathogenesis of Microorganisms and Microbiota
  - 1.5.1. Microbiota and its Importance
  - 1.5.2. Mechanisms of Pathogenesis
    - 1.5.2.1. Virulence Factors: Capsule and Lipopolysaccharide
    - 1.5.2.2. Routes of Dissemination of Microorganisms
  - 1.5.3. Toxi-infections and food poisoning
  - 1.5.4. Microbial Foodborne Diseases
- 1.6. Virus
  - 1.6.1. General Characteristics: Structure and Composition
  - 1.6.2. Classification of viruses
  - 1.6.3. Life Cycles in Viruses and Crops
  - 1.6.4. Mechanisms of Pathogenesis associated with viruses in foodstuffs
  - 1.6.5. Types of Antivirals
- 1.7. Fungi
  - 1.7.1. General Characteristics: Structure and Composition
  - 1.7.2. Classification of Fungi
    - 1.7.2.1. Ascomycetes
    - 1.7.2.2. Deuteromycetes
    - 1.7.2.3. Basidiomycetes
    - 1.7.2.4. Zygomycetes
  - 1.7.3. Mechanisms of Pathogenesis associated with Fungi in foodstuffs
    - 1.7.3.1. Types of Mycotoxins
  - 1.7.4. Types of Antifungals
- 1.8. Microbiological Immunology: Antigens and Antibodies
  - 1.8.1. Background of Immunology
  - 1.8.2. Types of Immunological Response
    - 1.8.2.1. Innate Response
    - 1.8.2.2. Adaptive Response
    - 1.8.2.3. Regulation of the Immune System
  - 1.8.3. Antibodies Structure and Function
  - 1.8.4. Immune System Evasion Methods

- 1.9. Epidemiology and Prophylaxis
  - 1.9.1. Background in Epidemiology
  - 1.9.2. Epidemiological Chain and Concept of Health
  - 1.9.3. Epidemiology and Preventive Measures for Infectious Diseases in Food
  - 1.9.4. Food as a Route of Disease Transmission
- 1.10. Main Microorganisms of Food Interest
  - 1.10.1. Development of Microorganisms in Food
  - 1.10.2. Types of Food Microorganism
    - 1.10.2.1. Altering Microbes
    - 1.10.2.2. Pathogenic Microbes
    - 1.10.2.3. Beneficial Microbes
  - 1.10.3. Foodborne Diseases

## Module 2. Microbiology and Food Hygiene

- 2.1. Introduction to Food Microbiology
  - 2.1.1. History of Food Microbiology
  - 2.1.2. Microbial Diversity: Archaea and Bacteria
  - 2.1.3. Phylogenetic Relationships Among Living Organisms
  - 2.1.4. Microbial Classification and Nomenclature
  - 2.1.5. Eukaryotic Microorganisms: Algae, Fungi and Protozoa
  - 2.1.6. Virus
- 2.2. Introduction to Food Microbiology
  - 2.2.1. Sterilization and Asepsis Methods
  - 2.2.2. Culture Mediums: Liquid and Solid, Synthetic or Defined, Complex, Differential and Selective
  - 2.2.3. Isolation of Pure Cultures
  - 2.2.4. Microbial Growth in Discontinuous and Continuous Cultures
  - 2.2.5. Influence of Environmental Factors on Growth
  - 2.2.6. Optical Microscopy
  - 2.2.7. Sample Preparation and Staining
  - 2.2.8. Fluorescence Microscope
  - 2.2.9. Transmission and Scanning Electron Microscopy

- 2.3. Microbial Metabolism
  - 2.3.1. Ways of Obtaining Energy
  - 2.3.2. Phototrophic, Chemolithotrophic and Chemorganotrophic microorganisms
  - 2.3.3. Carbohydrate Catabolism
  - 2.3.4. Degradation of Glucose to Pyruvate (Glycolysis, Pentose Phosphate Pathway and Entner-Doudoroff Pathway)
  - 2.3.5. Lipid and Protein Catabolism
  - 2.3.6. Fermentation
  - 2.3.7. Types of Fermentation
  - 2.3.8. Respiratory Metabolism: Aerobic Respiration and Anaerobic Respiration
- 2.4. Microbial Food Alterations
  - 2.4.1. Microbial Ecology of Foods
  - 2.4.2. Sources of Contamination of Vegetable Foods
  - 2.4.3. Fecal Contamination and Cross Contamination
  - 2.4.4. Factors Influencing Microbial Alteration
  - 2.4.5. Microbial Metabolism in Food
  - 2.4.6. Alteration Control and Preservation Methods
- 2.5. Foodborne Diseases of Microbial Origin
  - 2.5.1. Foodborne Infections: Transmission and Epidemiology
  - 2.5.2. Salmonellosis
  - 2.5.3. Typhoid and Paratyphoid Fever
  - 2.5.4. Campylobacter Enteritis
  - 2.5.5. Bacillary Dysentery
  - 2.5.6. Diarrhea Caused by Virulent E. coli Strains
  - 2.5.7. Yersiniosis
  - 2.5.8. Vibrio Infections
- 2.6. Diseases Caused by Foodborne Protozoa and Helminths
  - 2.6.1. General Characteristics of Protozoa
  - 2.6.2. Amoebic Dysentery
  - 2.6.3. Giardiasis
  - 2.6.4. Toxoplasmosis
  - 2.6.5. Cryptosporidiosis
  - 2.6.6. Microsporidiosis
  - 2.6.7. Food-borne Helminths: Flatworms and Roundworms
- 2.7. Viruses, Prions and Other Foodborne Biohazards
  - 2.7.1. General Properties of Viruses
  - 2.7.2. Composition and Structure of the Virion: Capsid and Nucleic Acid
  - 2.7.3. Virus Growth and Cultivation
  - 2.7.4. Virus Life Cycle (Lytic Cycle): Phases of Adsorption, Penetration, Gene Expression and Replication, and Release
  - 2.7.5. Alternatives to the Lytic Cycle: Lysogeny in Bacteriophages, Latent Infections, Persistent Infections and Tumor Transformation in Animal Viruses
  - 2.7.6. Viroids, Virusoids and Prions
  - 2.7.7. Incidence of Foodborne Viruses
  - 2.7.8. Characteristics of Foodborne Viruses
  - 2.7.9. Hepatitis A
  - 2.7.10. Rotavirus
  - 2.7.11. Scombroid Poisoning
- 2.8. Microbiological Analysis of Food
  - 2.8.1. Sampling and Sampling Techniques
  - 2.8.2. Reference Values
  - 2.8.3. Indicator Microorganisms
  - 2.8.4. Microbiological Counts
  - 2.8.5. Determination of Pathogenic Microorganisms
  - 2.8.6. Rapid Detection Techniques in Food Microbiology
  - 2.8.7. Molecular Techniques: Conventional PCR and real-time PCR
  - 2.8.8. Immunological Techniques
- 2.9. Beneficial Microorganisms in Food
  - 2.9.1. Food Fermentation: The Role of Microorganisms in the Production of Foodstuffs
  - 2.9.2. Microorganisms as Food Supplements
  - 2.9.3. Natural Preservatives
  - 2.9.4. Biological Systems of Food Conservation
  - 2.9.5. Probiotic Bacteria

- 2.10. Microbial Cell biological
  - 2.10.1. General Characteristics of Eukaryotic and Prokaryotic Cells
  - 2.10.2. The Prokaryotic Cell: Components Outside the Cell Wall: Glycocalyx and S-layer, Cell Wall, Plasma Membrane
  - 2.10.3. Flagella, Bacterial Mobility and Taxia
  - 2.10.4. Other Surface Structures, Fimbriae and Pili

### Module 3. Food and Public Health

- 3.1. Human Nutrition and Historical Evolution
  - 3.1.1. The Natural Fact and the Cultural Fact: Biological evolution, tool handling and tool making
  - 3.1.2. The Use of Fire, Hunter-Gatherer Profiles Meat or Vegetarian
  - 3.1.3. Biological, Genetic, Chemical and Mechanical Technologies Involved in Food Processing and Preservation
  - 3.1.4. Food in Roman Times
  - 3.1.5. Influence of the Discovery of America
  - 3.1.6. Food in Developed Countries
    - 3.1.6.1. Food Distribution Chains and Networks
    - 3.1.6.2. The “Network” Global Trade and Small Trade
- 3.2. Socio-Cultural Significance of Food
  - 3.2.1. Food and Social Communication Social Relationships and Individual Relationships
  - 3.2.2. Emotional Expressions of Food. Holidays and Celebrations
  - 3.2.3. Relationships Between Diets and Religious Precepts Food and Christianity, Hinduism, Buddhism, Judaism, Islam
  - 3.2.4. Natural Foods, Ecological Foods, and Organic Foods
  - 3.2.5. Typology of Diets: The Standard Diet, Slimming Diets, Curative Diets, Magical Diets and Absurd Diets
  - 3.2.6. Reality of Food and Food Perception: Protocol for Family and Institutional Meals
- 3.3. Communication and Eating Behavior
  - 3.3.1. Written Media: Specialist Magazines Informative Magazines and Professional Journals
  - 3.3.2. Audiovisual Media: radio, television, Internet, packaging. Advertising
  - 3.3.3. Eating Behavior: Motivation and Intake
  - 3.3.4. Food Labeling and Consumption. Development of likes and dislikes
  - 3.3.5. Sources of Variation in Food Preferences and Attitudes
- 3.4. Concept of Health and Diseases and Epidemiology
  - 3.4.1. Health Promotion and Disease Prevention
  - 3.4.2. Prevention Levels. Laws of Public Health
  - 3.4.3. Food Characteristics Food as a Vehicle for Disease
  - 3.4.4. Epidemiological Methods: Descriptive, Analytical, Experimental, Predictive
- 3.5. Sanitary, Social and Economic Significance of Zoonosis
  - 3.5.1. Zoonosis Classification
  - 3.5.2. Factors
  - 3.5.3. Assessment Criteria
  - 3.5.4. Action Plans:
- 3.6. Epidemiology and Prevention of Diseases Transmitted by Meat and Meat By-Products and Fish and Fish By-Products
  - 3.6.1. Introduction. Epidemiological Factors of Meat-Borne Diseases
  - 3.6.2. Consumption-based Diseases
  - 3.6.3. Preventive Measures for Diseases Transmitted by Meat Products
  - 3.6.4. Introduction. Epidemiological Factors of Fish Borne Diseases
  - 3.6.5. Consumption-based Diseases
  - 3.6.3. Prevention
- 3.7. Epidemiology and Prevention of Diseases Transmitted by Milk and Milk By-Products
  - 3.7.1. Introduction. Epidemiological Factors of Meat-Borne Diseases
  - 3.7.2. Consumption-based Diseases
  - 3.7.3. Preventive Measures for Diseases Transmitted by Dairy Products

- 3.8. Epidemiology and Prevention of Diseases Transmitted by Bread, Pastries, Confectionery and Cakes
  - 3.8.1. Introduction. Epidemiological Factors
  - 3.8.2. Consumption-based Diseases
  - 3.8.3. Prevention
- 3.9. Epidemiology and Prevention of Diseases Transmitted by Preserved and Semi-Preserved Foods, and by Edible Vegetables and Mushrooms
  - 3.9.1. Introduction. Epidemiological Aspects of Preserved and Semi-Preserved Foods
  - 3.9.2. Diseases Caused by Consumption of Canned and Semi-Canned Foods
  - 3.9.3. Sanitary Prevention of Diseases Transmitted by Preserved and Semi-Preserved Foods
  - 3.9.4. Introduction. Epidemiological Aspects of Vegetables and Mushrooms
  - 3.9.5. Diseases Caused by Consumption of Vegetables and Mushrooms
  - 3.9.6. Sanitary Prevention of Diseases Transmitted by Vegetables and Mushrooms
- 3.10. Health Problems Arising from the Use of Additives, Source of Food Poisoning
  - 3.10.1. Naturally Occurring Toxins in Food
  - 3.10.2. Toxins Due to Incorrect Handling
  - 3.10.3. Use of Food Additives





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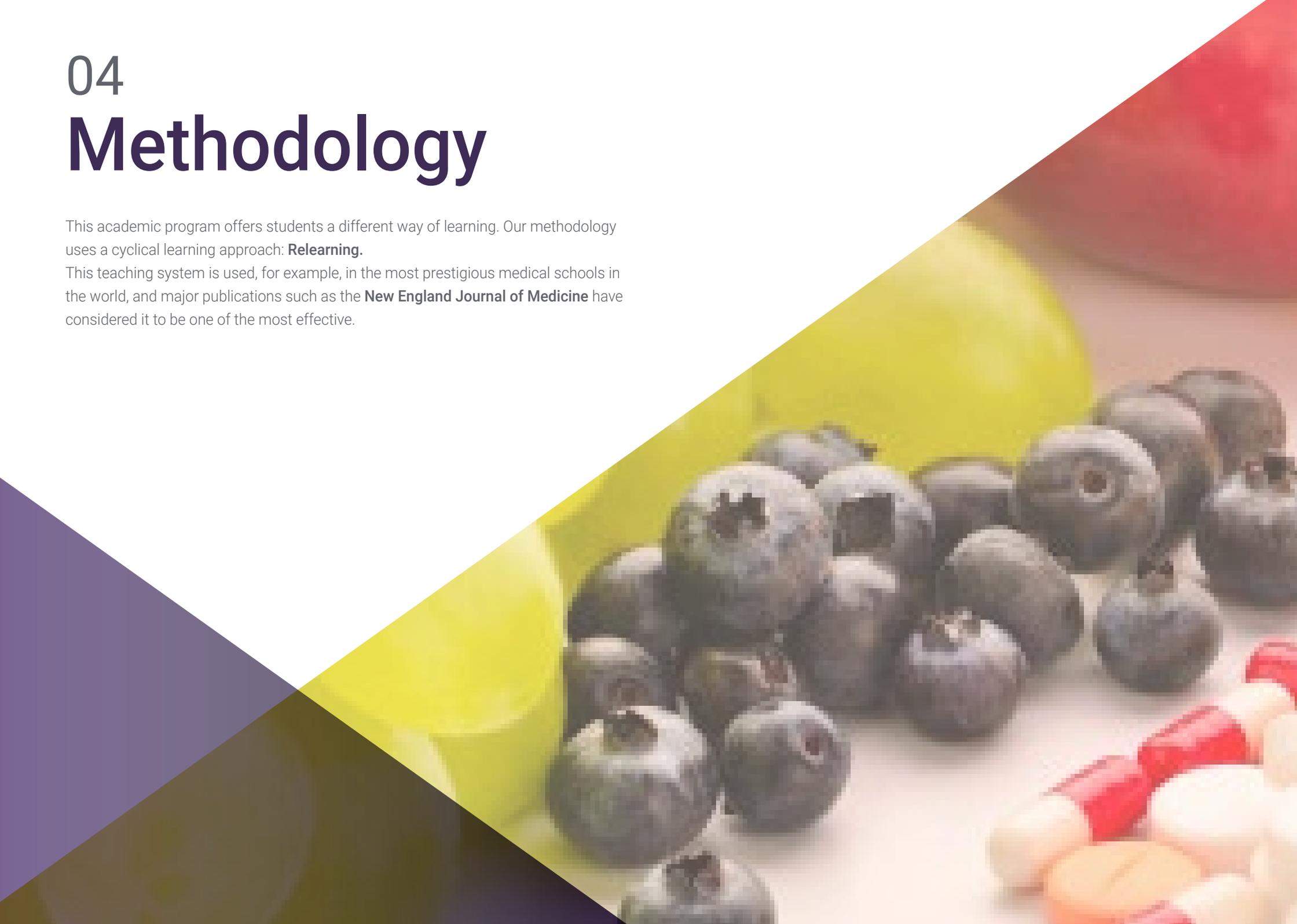
*A 100% online program that takes you into the current health problems derived from the use of additives”*

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.



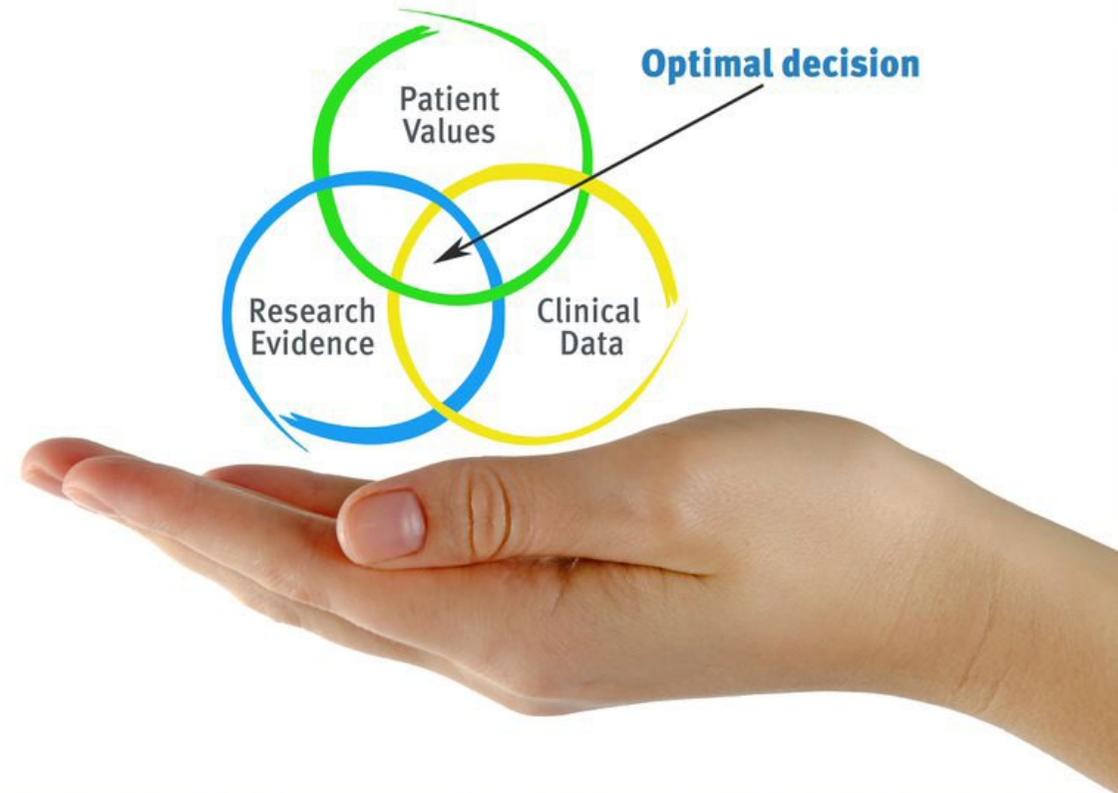
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*Discover Relearning, a system that abandons conventional linear learning, to take you through cyclical teaching systems: a way of learning that has proven to be extremely effective, especially in subjects that require memorization"*

## 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. 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, 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

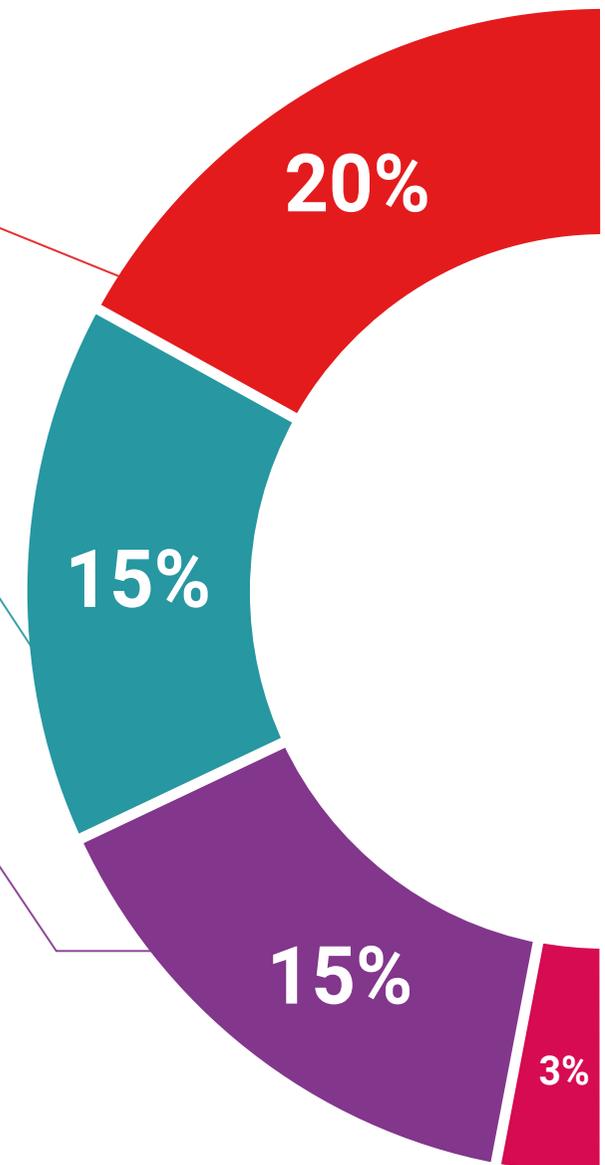
The TECH team presents the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

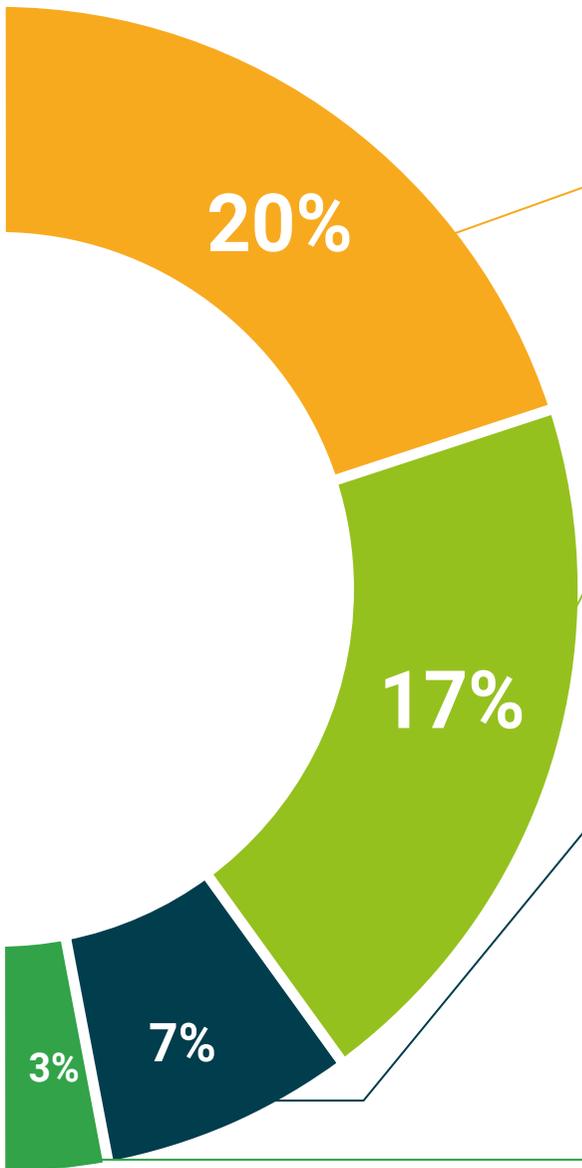
This exclusive educational system for presenting multimedia content was awarded by Microsoft as a "European Success Story".



#### 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 Diploma in Microbiology in the Food Industry guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Diploma 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 Diploma in Microbiology 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 Diploma** issued by **TECH Technological University** via tracked delivery\*.

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

Title: **Postgraduate Diploma in Microbiology in the Food Industry**

Official N° of Hours: **450 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 quality

online training

development languages

virtual classroom

**tech** technological  
university

**Postgraduate Diploma**  
Microbiology in  
the Food Industry

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

# Postgraduate Diploma

## Microbiology in the Food Industry