Postgraduate Certificate

Enzymatic Technology in the Food Industry

tech global university

tech global university

Postgraduate Certificate
Enzymatic Technology in the Food Industry

- Modality: **online**
- Duration: **6 weeks**
- Certificate: **TECH Global University**
- Credits: **6 ECTS**
- Schedule: **at your own pace**
- Exams: **online**

Website: **www.techtitute.com/us/nutrition/postgraduate-certificate/enzymatic-technology-food-industry**

Index

01
Introduction
p. 4

02
Objectives
p. 8

03
Structure and Content
p. 12

04
Methodology
p. 16

05
Certificate
p. 24

01

Introduction

Thanks to the current availability of technologies that facilitate the process of research and analysis of food components, it has been possible to have greater control over the agents that affect the organism and better quality products have been generated. In the case of enzymes, advances in this field have contributed to the reduction of chemical additives, making it possible to obtain healthier foods and reducing illnesses in the population. Therefore, with this program, students will be trained to become part of the food industry and contribute their knowledge in the treatment of these molecules. This, through a 100% online methodology that will allow students to have greater control over their time.

This is the best Postgraduate Certificate program to specialize in the application of Enzymatic Technology and grow professionally in the Food Industry"

This Postgraduate Certificate in developed by TECH offers a complete and updated training in the field of technologies that allow the application of enzymology within the Food Industry. This, from a nutritional approach that will allow the student to assimilate the benefits that enzymes provide and the correct way to enhance them, through the study of specific concepts in this area.

And the review of these terms will be possible thanks to the complete academic itinerary that conforms this degree, in which the student will find a deep explanation of enzymatic kinetics, including the Michaelis-Menten equation and the enzyme efficiency, factors that will allow an increase of knowledge and power of professional competences. In addition, the practical applications of Enzymatic Technology within the Food Industry, such as obtaining fruit juices and the synthesis of aromas and flavors, are addressed.

Students will also learn about essential aspects of business management in the field of enzymology, including the regulatory elements of industrial property, patenting, implementation of ISO standards and quality processes, allowing them to acquire a broader vision of this sector.

All this, thanks to the innovative Relearning methodology, which allows students to study from home and have greater time flexibility, since they will have access 24 hours a day to the multimedia resources they will find in the online campus. In addition, you will be able to strengthen your competencies and increase your ability to solve problems, since you will analyze practical cases that will place you in a real scenario.

This **Postgraduate Certificate in Enzymatic Technology 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 Enzymatic Technology in the Food Industry
- 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

The job opportunities in the food industry are wide for those who master the enzymatic technology and with this Postgraduate Certificate you will be able to access the best"

Learn at your own pace and without the need to submit to inflexible schedules, thanks to the fact that this program is completely online"

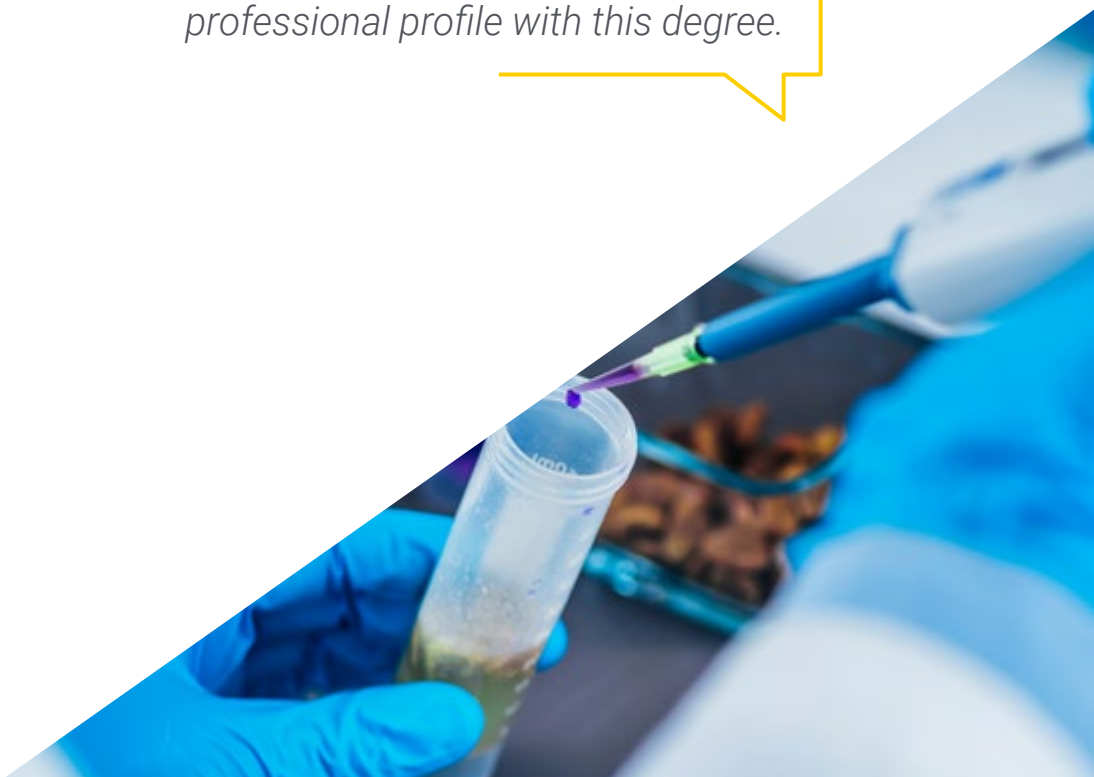
TECH guarantees you access to the best up-to-date multimedia resources that adapt to your learning style.

Expand your knowledge in enzyme technology and enhance your professional profile with this degree.

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.



02

Objectives

The main focus of this educational program is to provide students with a broad knowledge of the most relevant concepts within the Enzymatic area, as well as the technologies that allow their analysis. Therefore, students will improve their skills in the modification of enzymes in lipids, carbohydrates and proteins, applying research methodologies that will make the process more solid. This, through the study of multimedia content that will strengthen students' skills.

Technological advances are revolutionizing the Food Industry and with this program you will be able to specialize in those destined to the Enzymatic activity"

General Objectives

- To know the influence that chemical engineering has had in recent years in the production and creation of foodstuffs
- Identify the main quality processes to which food products are subjected
- Apply knowledge of food chemistry in dietetics and nutrition
- Recognize the influence of Bromatology and its related aspects in the qualitative and quantitative food composition
- Analyze new technologies and their contribution to the food production process

Develop skills at the forefront of Enzyme Technology with this Postgraduate Certificate program and become an expert in the use of enzymes in the Food Industry"

Specific Objectives

- Understand and correctly use the basic enzyme kinetics and the main parameters that regulate the activity of commercial enzymes in the different processes of the food industry
- Learn to design and adapt laboratory protocols to determine the enzymatic activity of commercial preparations
- Learn to design and plan food manufacturing processes including the use of enzymes in certain stages of the production process
- Develop appropriate criteria for deciding on the validity of the results obtained
- Develop the ability to work in a group
- Learn how to write a professional report

03

Structure and Content

The study program of this Postgraduate Certificate has been designed by leading experts in the field of Food Quality, with the objective of guaranteeing a quality education to students. In this way, they will acquire advanced knowledge about the technologies that allow analyzing the chemical reactions of enzymes and how they affect food. This, based on the study of multimedia resources and analysis of practical cases, offers students the opportunity to improve their professional skills in this area.

You will learn in a dynamic way, with up-to-date and high-impact tools, thanks to the multimedia resources prepared for this program"

Module 1. Enzymatic Technology

1.1. Introduction to enzymology
- 1.1.1. Industrial enzymes: industrial use
- 1.1.2. Classification of enzymes

1.2. Enzyme kinetics
- 1.2.1. Enzyme activity units
- 1.2.2. Stages of an enzymatic reaction
- 1.2.3. Michaelis-Menten equation: effect of substrate and enzyme concentration. Enzyme efficiency and substrate specificity
- 1.2.4. Enzyme activity and stability
  - 1.2.4.1. Limitations in practice: pH, temperature, inhibitors, stabilizers and activators. Determination of enzyme activity
- 1.2.5. Types of enzymatic processes in the food industry

1.3. Enzymatic modification of carbohydrates I
- 1.3.1. Carbohydrate structure and enzymes that modify carbohydrates
  - 1.3.1.1. Glycosidases: polysaccharidases and disaccharidases
  - 1.3.1.2. Practical examples in the food industry
- 1.3.2. Obtaining fruit juices: clarified (apple) and cloudy (orange)
- 1.3.3. Sweetening syrups: glucose, maltose, fructose

1.4. Enzymatic modification of lipids
- 1.4.1. Enzymology in organic media. Characteristics of lipases
- 1.4.2. Triglyceride modification
- 1.4.3. Phospholipid modification
- 1.4.4. Lipoprotein modification
- 1.4.5. Synthesis of aromas and flavors

1.5. Enzymatic modifications of proteins
- 1.5.1. Action of proteases
- 1.5.2. Factors affecting the activity of proteases
- 1.5.3. Protein hydrolyzates. Unmoored
- 1.5.4. Crosslinking: transglutaminase

1.6. Research methodologies in applied enzymology
- 1.6.1. Biomolecule separation methodologies: Centrifugation, extraction, evaporation and lyophilization
- 1.6.2. Chromatography of volatile and non-volatile biomolecules: GC and HPLC
- 1.6.3. Preparative chromatography of enzymes and proteins: FPLC
- 1.6.4. Proteomics and Metabolomics: Mass spectrometry: maldi-toff

1.7. Agricultural industrial enzymology
- 1.7.1. Enzymes as molecular targets in agricultural crop improvement
- 1.7.2. Enzymes applied in post-harvest technology
  - 1.7.2.1. Modified and controlled atmospheres
  - 1.7.2.2. Protective atmospheres
- 1.7.3. Enzymes applied to food extraction, processing and elaboration
  - 1.7.3.1. Foods fortified with nutraceuticals

1.8. Origin of industrial enzymes
- 1.8.1. Enzymes isolated from plants, animals, micro-organisms and genetically modified organisms
- 1.8.2. Main activity and secondary activities
- 1.8.3. Formulation

1.9. Enzymology and Business Management
- 1.9.1. Enzymes, industrial property and patents
- 1.9.2. New technology-based companies, spin offs
- 1.9.3. Enzymes, prevention and A.P.P.P.C.C. system
- 1.9.4. Enzymes and environment: ISO 14000 standards, by-products and contaminants
- 1.9.5. Enzymes and quality: enzymes, ISO standards, GP. Integrated management

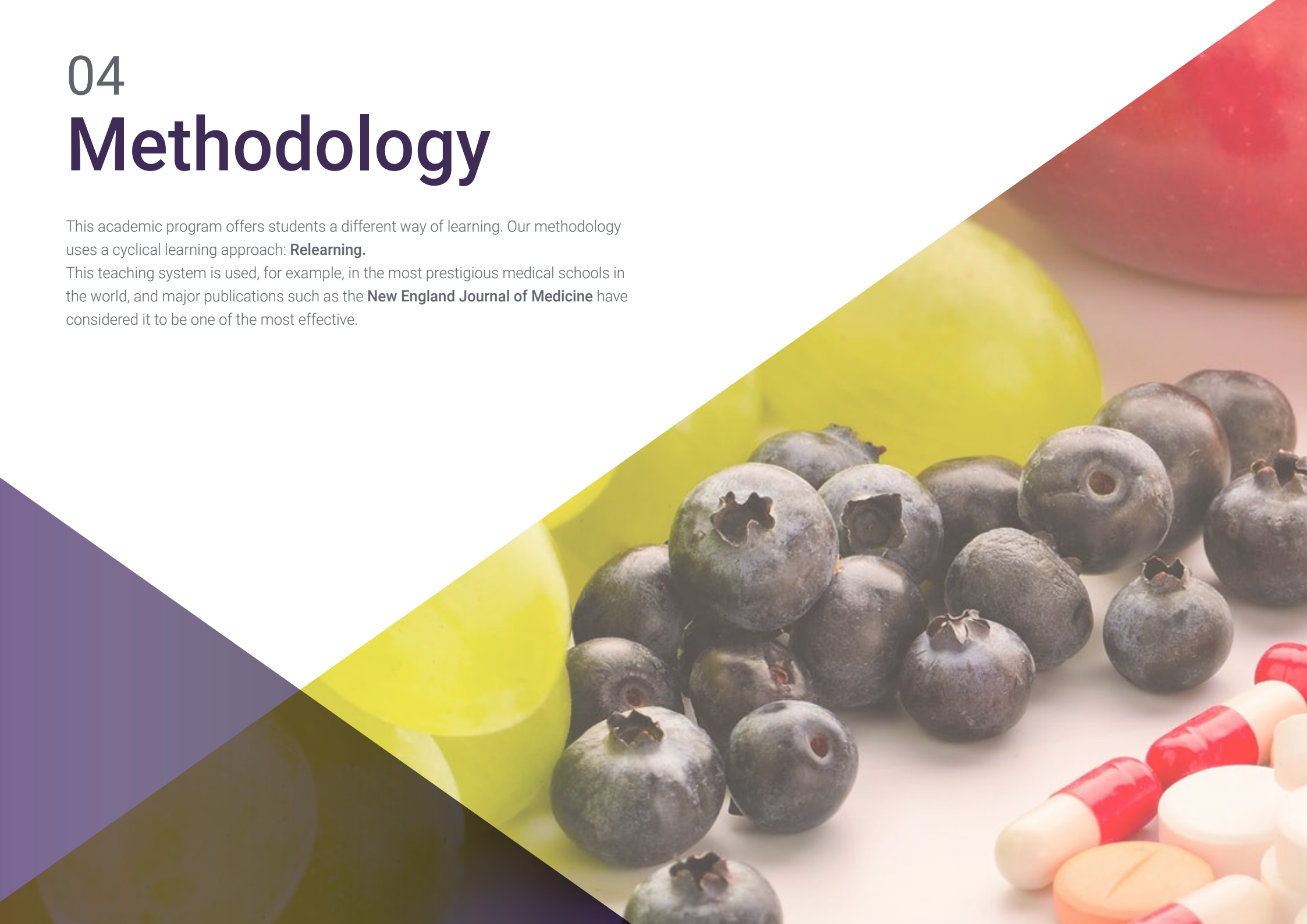
1.10. Applied enzymology
- 1.10.1. Enzymes and Biotechnology Sectors
- 1.10.2. Enzymes and biocatalysis: Production, bioanalysis, biodegradation and synthesis
- 1.10.3. Biotechnological production and improvement of enzymes
- 1.10.4. Homogeneous and heterogeneous enzymatic biocatalysis: Activity, stability, non-aqueous media, immobilization, bioreactors and biosensors

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.

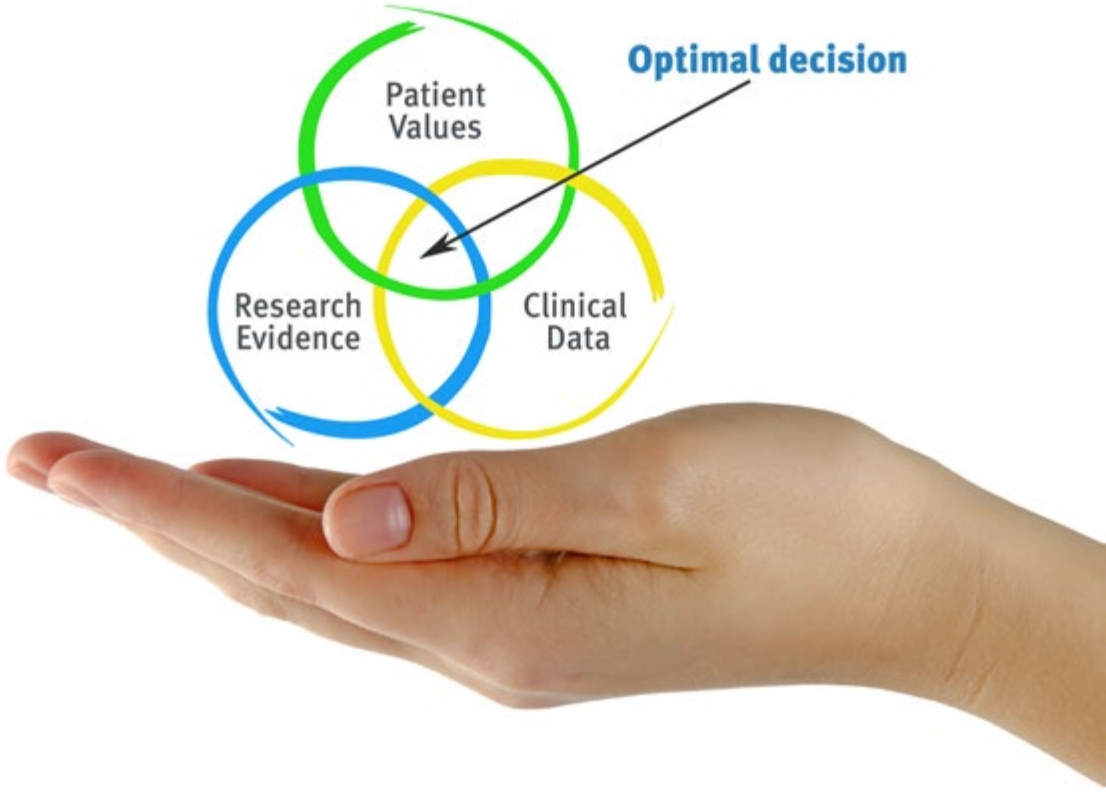


Discover Relearning, a system that abandons conventional linear learning, to take you through cyclical teaching systems: a way of learning that has proven to be extremely effective, especially in subjects that require memorization"

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.

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:

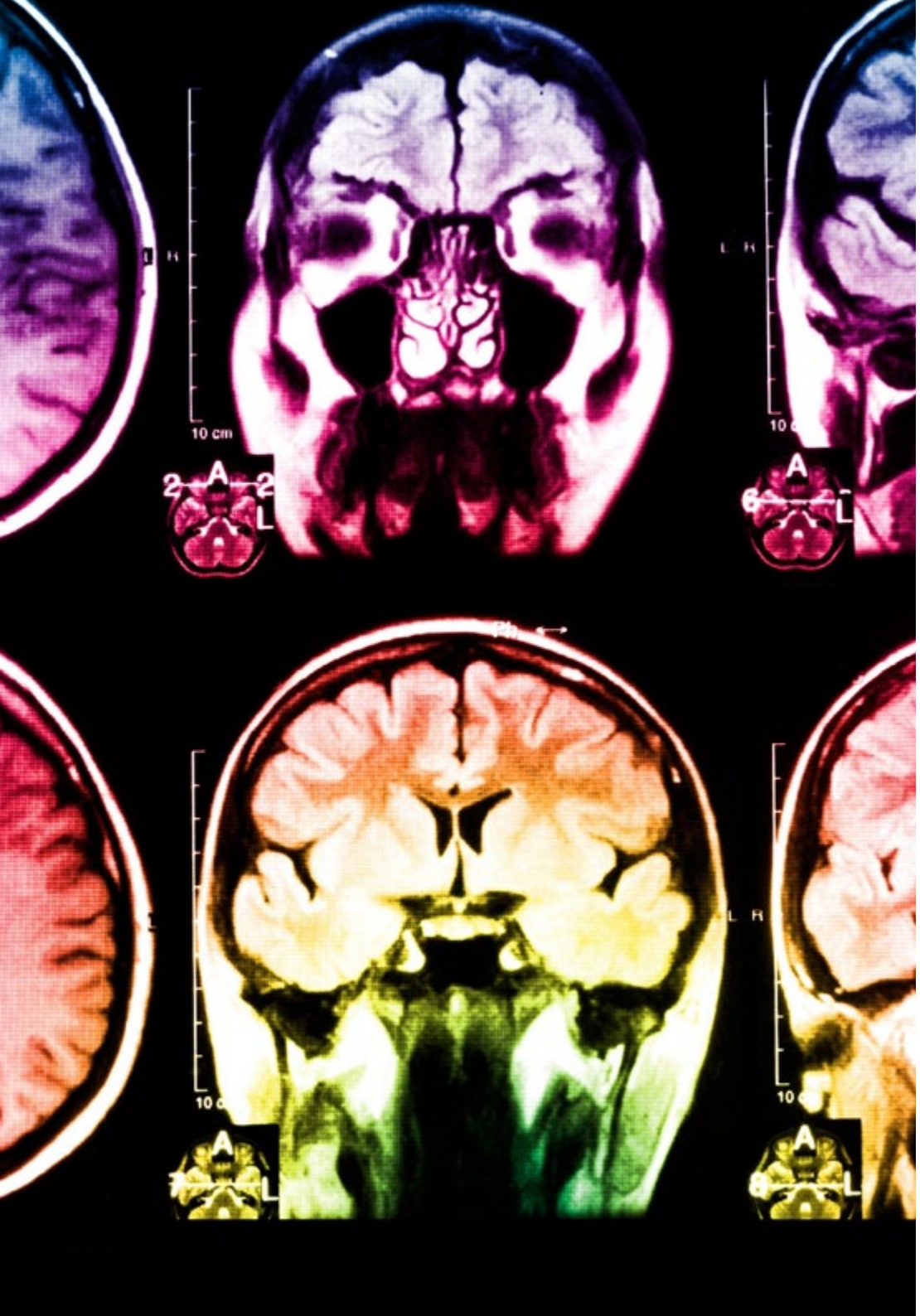
1. Nutritionists who follow this method not only achieve the assimilation of concepts, but also a development of their mental capacity through exercises to evaluate real situations and the application of knowledge.
2. Learning is solidly translated into practical skills that allow the nutritionist to 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.

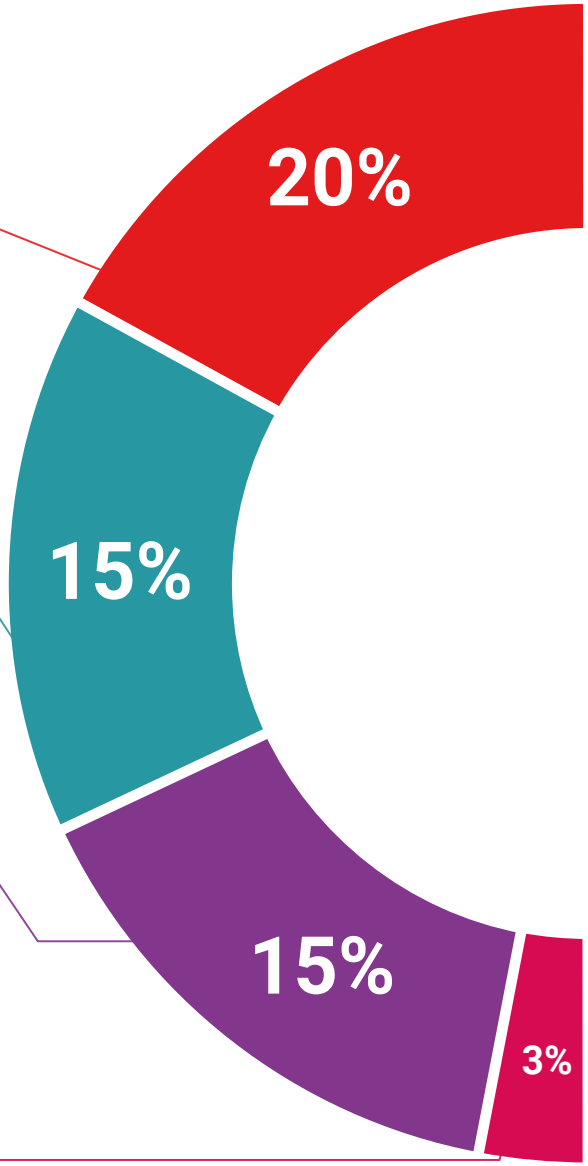
Interactive Summaries

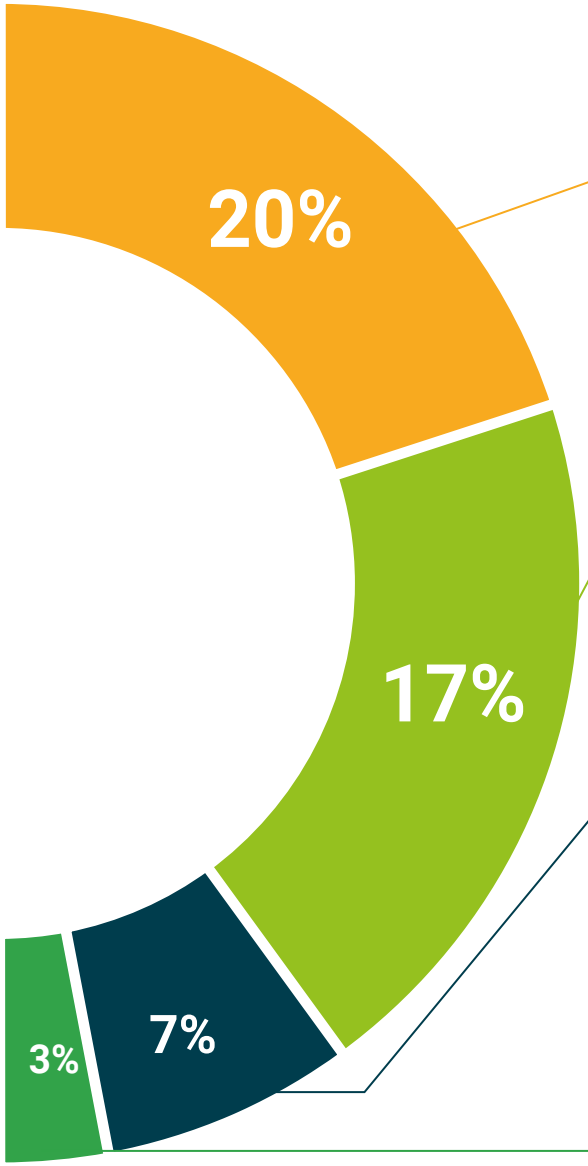
The TECH team presents the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

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

This Postgraduate Certificate in Enzymatic Technology in the Food Industry guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Certificate issued by TECH Global University.

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

This program will allow you to obtain your **Postgraduate Certificate in Enzymatic Technology in the Food Industry** endorsed by **TECH Global University**, the world's largest online university.

TECH Global University is an official European University publicly recognized by the Government of Andorra (***official bulletin***). Andorra is part of the European Higher Education Area (EHEA) since 2003. The EHEA is an initiative promoted by the European Union that aims to organize the international training framework and harmonize the higher education systems of the member countries of this space. The project promotes common values, the implementation of collaborative tools and strengthening its quality assurance mechanisms to enhance collaboration and mobility among students, researchers and academics.

This **TECH Global University** title is a European program of continuing education and professional updating that guarantees the acquisition of competencies in its area of knowledge, providing a high curricular value to the student who completes the program.

Title: **Postgraduate Certificate in Enzymatic Technology in the Food Industry**

Modality: **online**

Duration: **6 weeks**

Accreditation: **6 ECTS**


tech global university

Mr./Ms. _____, with identification document _____
has successfully passed and obtained the title of:

Postgraduate Certificate in Enzymatic Technology in the Food Industry

This is a program of 180 hours of duration equivalent to 6 ECTS, with a start date of dd/mm/yyyy and an end date of dd/mm/yyyy.

TECH Global University is a university officially recognized by the Government of Andorra on the 31st of January of 2024, which belongs to the European Higher Education Area (EHEA).

In Andorra la Vella, on the 28th of February of 2024

Dr. Pedro Navarro Illana
Rector

This qualification must always be accompanied by the university degree issued by the competent authority to practice professionally in each country. Unique TECH Code: AFWORD23S techtitute.com/certificates

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

tech global university

Postgraduate Certificate
Enzymatic Technology in the Food Industry

- Modality: **online**
- Duration: **6 weeks**
- Certificate: **TECH Global University**
- Credits: **6 ECTS**
- Schedule: **at your own pace**
- Exams: **online**

Postgraduate Certificate

Enzymatic Technology in the Food Industry

tech global university