

Postgraduate Diploma

Functional Food Design



Postgraduate Diploma Functional Food Design

- » Modality: online
- » Duration: 6 months
- » Certificate: TECH Global University
- » Credits: 18 ECTS
- » Schedule: at your own pace
- » Exams: online

Website: www.techtute.com/us/nutrition/postgraduate-diploma/postgraduate-diploma-functional-food-design

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01

Introduction

The growing concern of the population for their physical and mental wellbeing has led the food industry to work on the development of products that are beneficial to health and reduce the risk of disease. Scientific advances in this field, as well as technological development, have led to the promotion of functional foods, which people include in their daily consumption. A global trend of which the nutrition professional must be aware, constantly updating his knowledge. For this reason, this 100% online program was created to offer the specialist the most relevant and recent information on the techniques and tools used for food design, the latest developments in the planning of specific diets for people with different pathologies or the latest advances in culinary techniques. All this with multimedia didactic material prepared by specialists in this field and to which you will have access 24 hours a day.





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With this 100% online and flexible Postgraduate Diploma you will be able to keep up to date with the latest developments in Functional Food Design”

Dairy products enriched with vitamins, minerals, omega-3 or probiotics that seek to generate positive effects on the intestinal flora are some of the functional foods that can be found more frequently on the market today. The scientific evidence supporting the benefits of these components has gained the support not only of the food industry, but also of consumers themselves, who are increasingly demanding products that generate health benefits.

In this sense, the sector, in coordination with other disciplines, promotes the design of this type of food, which is already part of people's daily diet. A global trend, which has been growing since the 1980s and is booming today. For this reason, TECH has decided to create this Postgraduate Diploma in Functional Food Design, aimed primarily at nutrition professionals seeking to update their knowledge in this field.

Thus, this institution offers a program where, in just 6 months, the specialist will be able to deepen in the innovations made from food technology or in the nutritional adaptation to people suffering from heart disease, digestive system or suffer from food consumption disorders. In addition, video summaries of each topic, in-depth videos or case study simulations will bring you closer to the most appropriate diet for pregnant women, infants or adolescents.

In this way, this academic institution offers the professional the option of pursuing a university degree conveniently, whenever and wherever he/she wishes. All you need is an electronic device (computer, tablet or cell phone) with an internet connection to access the content hosted on the virtual platform at any time. Likewise, the Relearning system will allow you to reduce the long hours of study so frequent in other methodologies. It is also an ideal academic option for those who wish to combine their professional and personal responsibilities with a Postgraduate Diploma.

This **Postgraduate Diploma in Functional Food Design** 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
- 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



A Postgraduate Diploma, whose didactic material will allow you to delve into the latest culinary techniques”

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The case studies in this program will bring you closer to the relevance of heat treatment calculations in the canning industry”

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 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 this Postgraduate Diploma you will be up to date in Food Science and Technology.

An academic option that will guide you for 6 months through the progress in food design and its daily use in pregnant women, infants or adolescents.



02 Objectives

The nutrition professional who immerses himself in this university degree will easily deepen through the library of multimedia resources in the design of nutritional plans according to the characteristics of each person and through the use of the latest functional products. This will allow you to keep abreast of current trends in this field, as well as the latest developments in the technology used by the food industry.



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*You have 450 hours of innovative
and current knowledge on Functional
Food Design”*



General Objectives

- Ability to know, understand and control processes in the agri-food industry. Modeling and optimization of food processes
- Develop menu planning for groups and design and interpret food surveys
- Manage and propose collective catering services and propose food programs suitable for different groups, ensuring the quality and food safety of the food managed and providing adequate training to the personnel involved
- Establish culinary treatments that guarantee an acceptable standards of quality for cooked dishes
- Establish working and food handling conditions in the preparation of cooked dishes





Specific Objectives

Module 1. Food technology

- ♦ Know, understand and use the principles of the basic fundamentals and technological processes suitable for the production, packaging and preservation of foodstuffs
- ♦ Evaluate the impact of processing on food properties
- ♦ Determine the suitability of technological advances for food and process innovation in the food industry
- ♦ Ability to know, understand and use the facilities of agri-food industries, their equipment and auxiliary machinery of the agri-food industry

Module 2. Nutrition and dietetics

- ♦ Innovate and design new processes and products that meet market needs in different aspects such as assessing the degree of acceptability of such products, establishing their production costs and environmental risks
- ♦ Ability to intervene in health promotion activities, at the individual and collective level, contributing to the nutritional education of the population
- ♦ Study and interpret reports and administrative files related to a product, in order to be able to give a reasoned answer to the question that arises
- ♦ Calculate and establish healthy dietary guidelines to assess the nutritional status of individuals and groups

Module 3. Food technology

- ♦ Build background knowledge for the study of specific food production technologies
- ♦ Establish the influence of processing systems on the design of manufacturing industries
- ♦ Analyze factors influencing efficiency in food production
- ♦ Know the basic aspects of specific food processing technologies according to the initial raw material and the resulting product



A Postgraduate Diploma that will allow you to comfortably learn about the technologies used in food processing from your Tablet or cell phone"

03

Structure and Content

The syllabus of this Postgraduate Diploma has taken into account the most recent information and scientific studies on Functional Food Design. Thus, students will learn about advances in product alteration processes, packaging, the latest culinary techniques and their application in nutritional plans. Likewise, the case studies provided by the specialists in this program will bring you closer to the reality of the sector, and you will be able to include these techniques in your daily work.





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An innovative multimedia content that will bring you closer to the latest information on the use of functional foods in specific diets for patients with cardiac pathologies”

Module 1. Food Technology I

- 1.1. Introduction to Food Science and Technology
 - 1.1.1. Historical Development
 - 1.1.2. Concept of Food Science and Technology
 - 1.1.3. Objectives of Food Technology. Relationships With Other Sciences
 - 1.1.4. Worldwide Food Industries
- 1.2. Preparation Methods Including Dry and Wet Preparation and Peeling
 - 1.2.1. Reception of food in the food industry and preparation of the raw material raw material
 - 1.2.2. Cleaning: Dry and wet Methods
 - 1.2.3. Selection and Classification
 - 1.2.4. Main hair Methods
 - 1.2.5. Peeling Equipment
- 1.3. Downsizing and Upsizing
 - 1.3.1. General Objectives
 - 1.3.2. Dry Food Size Reduction Equipment and applications
 - 1.3.3. Fibrous Food Size Reduction Equipment and applications
 - 1.3.4. Effect on Foods
 - 1.3.5. Size Reduction of Liquid Foodstuffs: Homogenization and Atomization
 - 1.3.5.1. Equipment and applications
 - 1.3.6. Enlargement techniques: Enlargement: Agglomeration, Instantaneous Agglomeration or Granulation
- 1.4. Causes and Factors Involved in Food Spoilage
 - 1.4.1. Description of the Causes of Food Spoilage
 - 1.4.2. Factors Involved in Food Spoilage
 - 1.4.3. Actions to Combat Physical and Chemical Spoilage
 - 1.4.4. Possible Actions to Prevent or Delay Microbial Activity
- 1.5. Blanching processing
 - 1.5.1. General Aspects. Objectives
 - 1.5.2. Blanching Methods: Steam, Hot Water and other Methods
 - 1.5.3. Evaluation of Blanching in Fruits and Vegetables
 - 1.5.4. Equipment Facilities
 - 1.5.5. Effects on the Nutritional and Sensory Properties of Foods
- 1.6. Fundamentals of thermobacteriology
 - 1.6.1. Basis of Thermobacteriology
 - 1.6.2. Kinetics of Microbial Destruction by Heat
 - 1.6.3. Survival Graph Value Concept D. Thermal Destruction Graphs
 - 1.6.4. Z-value: Concept of Commercial Sterility
 - 1.6.5. F and Fo Values Practical Examples of Heat Treatment Calculations in the Canning Industry
- 1.7. Pasterization
 - 1.7.1. Concepts and Objectives
 - 1.7.2. Types of Pasteurization Applications in the Food Industry
 - 1.7.3. Effect on Foods
 - 1.7.3.1. Milk Pasteurization: Lactoperoxidase Test
- 1.8. Sterilization
 - 1.8.1. Objectives
 - 1.8.2. Sterilization of packaged foods
 - 1.8.3. Filling, evacuation and container closing operations
 - 1.8.4. Types of Sterilizers: Discontinuous and Continuous UHT Treatment
 - 1.8.5. Effect on Foods
- 1.9. Microwave heating
 - 1.9.1. General aspects of electromagnetic radiations
 - 1.9.2. Microwave characteristics
 - 1.9.3. Dielectric properties of the material
 - 1.9.4. Conversion of Microwave Energy into Heat Equipment Applications
 - 1.9.5. Effect on Foods
- 1.10. Infrared Radiation
 - 1.10.1. Theoretical aspects
 - 1.10.2. Equipment and Facilities Applications
 - 1.10.3. Others Non-Ionizing Radiation

Module 2. Nutrition and dietetics

- 2.1. Techniques to determine nutritional status
 - 2.1.1. Individual assessment. Medical, social and dietary history
 - 2.1.2. Methods for determining body composition (Densitometry, anthropometry, isotopes, urinary creatinine)
 - 2.1.3. Examination of the individual's physical appearance
 - 2.1.4. Biochemical Tests
- 2.2. Assessment of nutritional status in collectivities
 - 2.2.1. Nutritional epidemiology
 - 2.2.1.1. Types of food surveys
 - 2.2.1.2. Forms of survey management
 - 2.2.2. Evaluation of family consumption and evaluation of individual consumption
- 2.3. Nutrition during pregnancy
 - 2.3.1. Physiological changes during pregnancy
 - 2.3.2. Nutritional Requirements (Energy, Proteins, Carbohydrates, Lipids, Vitamins, Minerals)
 - 2.3.3. Physiological basis of the lactation process
 - 2.3.4. Pathophysiology during Pregnancy and breastfeeding
- 2.4. Infant Nutrition
 - 2.4.1. Infant Physiology
 - 2.4.2. Nutritional Requirements (Energy, Proteins, Lipids, Carbohydrates, Vitamins, Minerals)
 - 2.4.3. Infant Feeding Guidelines and Breastfeeding
 - 2.4.3.1. Composition of Breast Milk
 - 2.4.3.2. Artificial Breastfeeding
 - 2.4.3.3. Beikost
- 2.5. Nutrition in Childhood
 - 2.5.1. General Characteristics
 - 2.5.2. Nutritional Requirements
 - 2.5.2.1. Age in kindergarten
 - 2.5.2.2. School Age
 - 2.5.2.3. Determining factors and associated problems
- 2.6. Nutrition in adolescence and old age
 - 2.6.1. Anatomical-physiological characteristics in adolescence
 - 2.6.2. Adolescent Eating Habits
 - 2.6.3. Growth and Development
 - 2.6.4. Nutritional problems in adolescence
 - 2.6.5. Physiological changes in old age
 - 2.6.6. Recommended intakes and associated pharmacology
- 2.7. Weight control and food consumption disorders
 - 2.7.1. Body weight components and associated regional distribution
 - 2.7.2. Adipose tissue development and body weight regulation
 - 2.7.3. Obesity: prevalence, distribution, classification, causes and treatment treatment
 - 2.7.4. Food consumption disorders
- 2.8. Diet in obesity, anorexia and bulimia
 - 2.8.1. Obesity treatment or management and dietary modifications
 - 2.8.2. Low-calorie and maintenance diet
 - 2.8.3. Exercise and medications
 - 2.8.4. Types and causes of anorexia
 - 2.8.5. Treatment and diagnosis
 - 2.8.6. Treatment and diagnosis of bulimia
- 2.9. Nutrition in cardiovascular disease and hypertension
 - 2.9.1. Introduction: prevalence and mortality
 - 2.9.1.1. Pathophysiology and risk factors for cardiovascular disease
 - 2.9.1.2. Relationship of dietary factors to serum lipids
 - 2.9.1.3. Preventive measures for cardiovascular disease
 - 2.9.1.4. Treatment and associated diet therapy
 - 2.9.2. Concept and pathophysiology of hypertension
 - 2.9.3. Factors related to diet and treatment
 - 2.9.4. Sodium-controlled diets
- 2.10. Diet in diseases of the digestive system
 - 2.10.1. Gastroesophageal Reflux
 - 2.10.2.1. Etiology and Pathophysiology
 - 2.10.2.2. Nutritional Treatment
 - 2.10.2. Acid Peptic Disease
 - 2.10.2.1. Nutritional Treatment
 - 2.10.3. Diarrhea and types
 - 2.10.3.1. Treatment of acute diarrhea and chronic diarrhea
 - 2.10.4. Treatment of constipation

Module 3. Food Technology I

- 3.1. Technology of Refrigeration
 - 3.1.1. Fundamentals of Preservation via Refrigeration
 - 3.1.2. Effect of Refrigeration on the Chemical Reaction Rate and on Microbial Growth
 - 3.1.3. Factors to be Monitored During Refrigerated Storage Effect on Foods
- 3.2. Freezing Technology
 - 3.2.1. Process and Stages of Freezing: Theory of Crystallization
 - 3.2.2. Freezing Curves Modification of Foods During Freezing
 - 3.2.3. Effects on Chemical and Biochemical Reactions
 - 3.2.4. Effects on Microorganisms Defrosting
- 3.3. Cold Production Systems
 - 3.3.1. Calculating Refrigeration and Freezing Requirements
 - 3.3.2. Calculation of Freezing Time Cold Production Systems
 - 3.3.3. Refrigerators and Refrigerated Storage
 - 3.3.4. Freezers and Frozen Storage
 - 3.3.5. Vapor Compression and Cryogenic Systems
- 3.4. Dehydration Technology
 - 3.4.1. Concept, Goals and Foundation
 - 3.4.2. Psychrometry and Applications of the Psychrometric Diagram
 - 3.4.3. Drying Speed. Drying Phases and Curves
 - 3.4.4. Effects of Dehydration on Foodstuffs
 - 3.4.5. Equipment, Installations and Applications
- 3.5. Freeze-Drying and Concentration Freezing
 - 3.5.1. Theoretical Fundamentals Freeze-drying systems
 - 3.5.2. Applications. Effect on Foods
 - 3.5.3. Freezing Concentration: Fundamentals and Objectives
- 3.6. Reduction of Water Activity in Food Via the Addition of Solutes
 - 3.6.1. Main Water Activity Reducing Agents and How They Act
 - 3.6.2. Salting Technology: Salting Methods, Effects on Foodstuffs
 - 3.6.3. Addition of Sugars and Other Chemical Agents as Depressants of Water Activity
 - 3.6.4. Effect on Foods



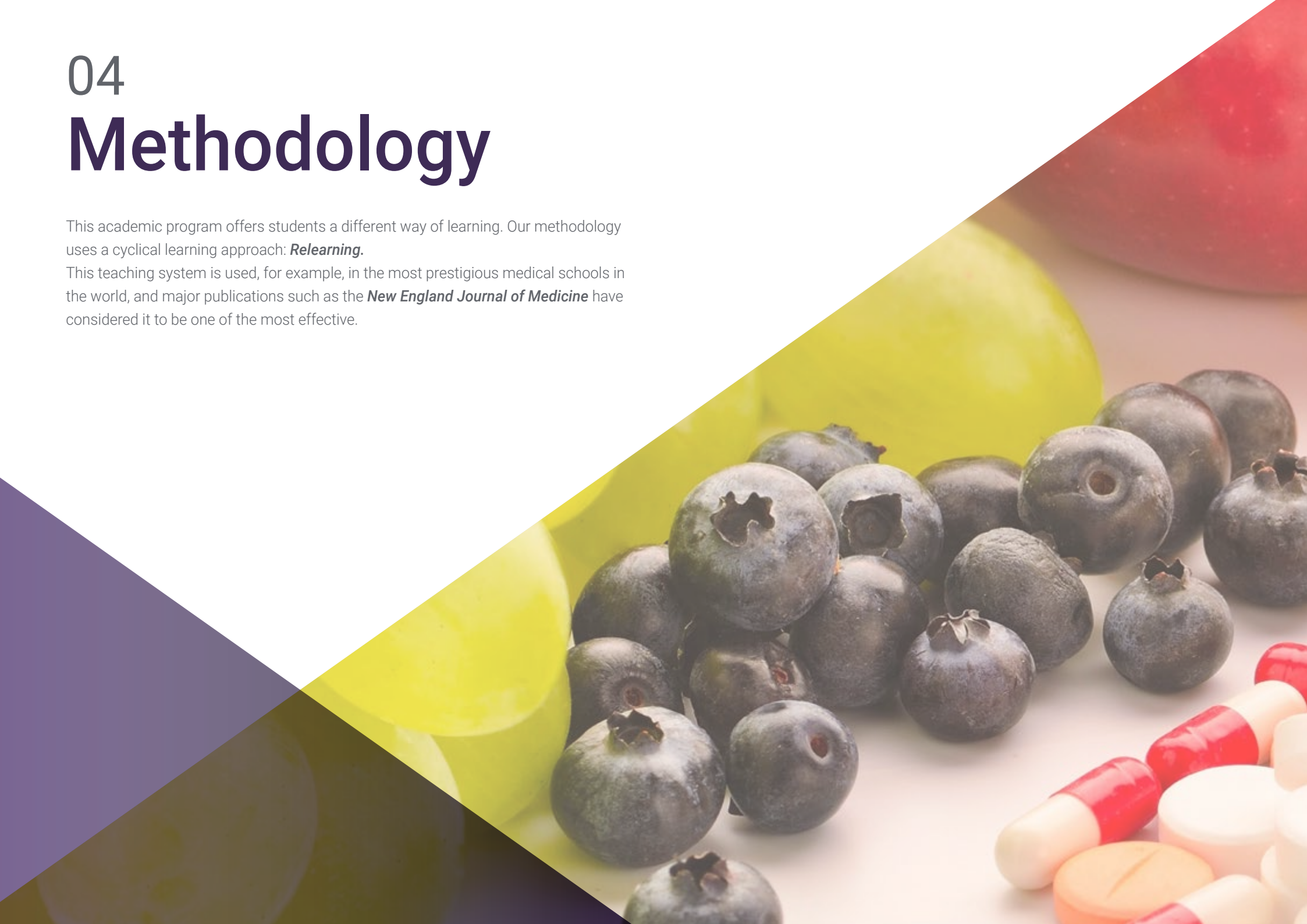
- 3.7. Smoking technology
 - 3.7.1. Definition and Composition of Smoke Smoke Production Systems
 - 3.7.2. Smokehouse Characteristics Smoking techniques
 - 3.7.3. Effect on Foods
 - 3.7.4. Applications in the Food Industry
- 3.8. Packaging technology
 - 3.8.1. Packaging purposes
 - 3.8.2. Packaging design and materials for their manufacture
 - 3.8.3. Analysis of the Interactions Between Packaging and Food Packaging and dosing systems
 - 3.8.4. Container Closure and Closure Control Checks Packaging for distribution
 - 3.8.5. Container Labeling
- 3.9. Material Transport Systems
 - 3.9.1. Material Transport Systems. Transporters
 - 3.9.2. Pneumatic Equipment Cranes and vehicles
 - 3.9.3. Temperature Regulated Food Transportation
- 3.10. Industrial kitchen processing and preparation industries
 - 3.10.1. Concepts and Objectives of Culinary Science and Technology The professional culinary space
 - 3.10.2. Culinary Techniques

“With this Postgraduate Diploma you will be up to date with the latest equipment used in the food industry to carry out dehydration”

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

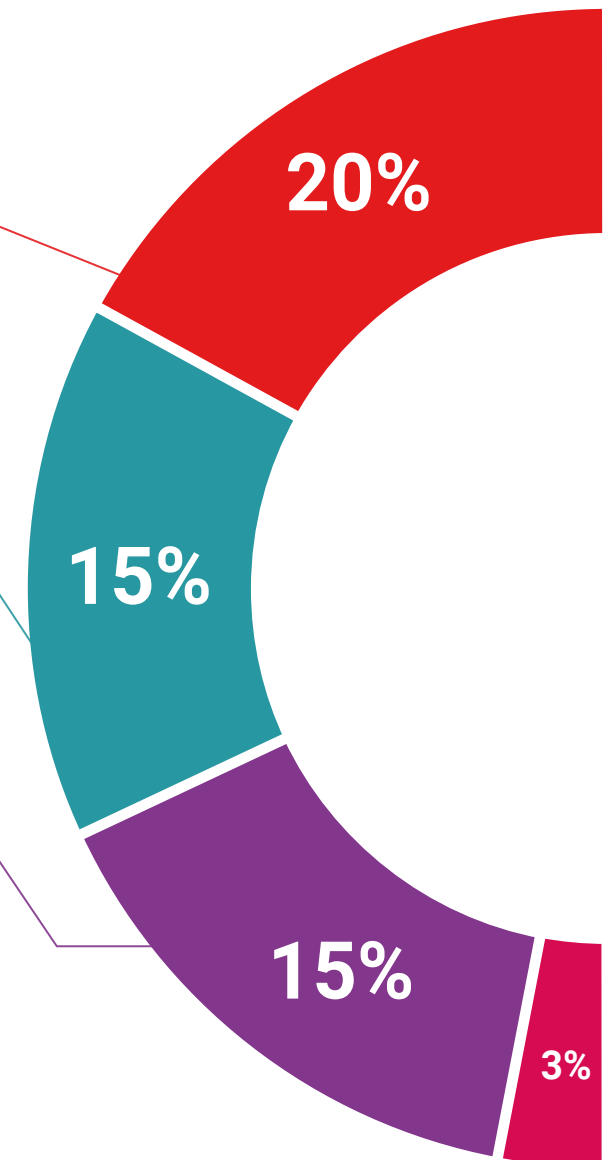
The TECH team presents the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

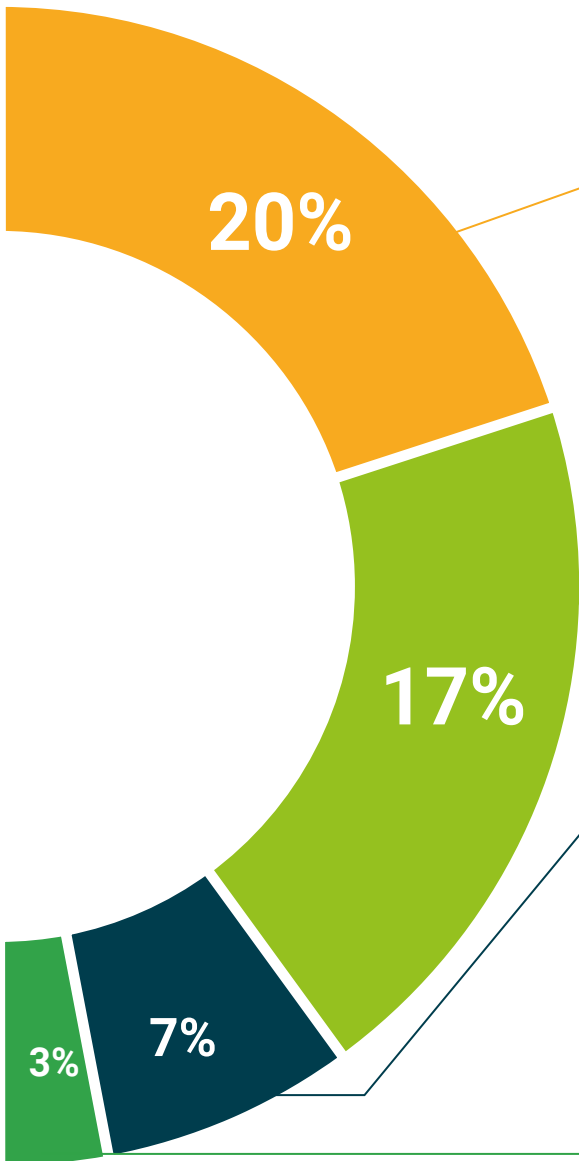
This exclusive educational system for presenting multimedia content was awarded by Microsoft as a "European Success Story".



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 Functional Food Design guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Diploma issued by TECH Global University.



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*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 Diploma in Functional Food Design** 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 Diploma in Functional Food Design**

Modality: **online**

Duration: **6 months**

Accreditation: **18 ECTS**



*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.



Postgraduate Diploma Functional Food Design

- » Modality: online
- » Duration: 6 months
- » Certificate: TECH Global University
- » Credits: 18 ECTS
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Postgraduate Diploma

Functional Food Design

