

# Postgraduate Diploma

## Microbiota in Neonatology and Pediatrics





## Postgraduate Diploma Microbiota in Neonatology and Pediatrics

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

Website: [www.techtute.com/pk/physiotherapy/postgraduate-diploma/postgraduate-diploma-microbiota-neonatology-pediatrics](http://www.techtute.com/pk/physiotherapy/postgraduate-diploma/postgraduate-diploma-microbiota-neonatology-pediatrics)

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# 01

# Introduction

Scientific research in the field of microbiota has been booming in recent decades, aimed both at the study of its characteristics and its impact on our health. The study of human microbiota opens the door to the knowledge of multiple diseases, especially the so-called functional diseases, with the microbiome being researchers' main workhorse. With this in mind, TECH professionals have designed this program that aims to train physiotherapists to be able to understand the functioning of the microbiome in neonates and pediatric patients. All of this will make these professionals much more competent, prepared to deal with this type of patient and with better guarantees of success.



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*This Postgraduate Diploma will train physiotherapists to be able to care for pediatric patients with a deep knowledge of their microbiota"*

Numerous pieces of scientific evidence have implicated the intestinal microbiome and its metabolic potential in various pathological conditions in recent years, giving rise to new therapeutic strategies to control and regulate this ecosystem. The study of this ecosystem is a field that is rapidly advancing scientifically, and it is universally accepted that in order to achieve an adequate state of health, it is also necessary to have "healthy" Microbiota.

Our Microbiota undergo changes as a consequence of the influence of multiple factors such as diet, lifestyle, pharmacological treatments..., generating alterations in this bacterial ecosystem. This abnormal interaction that the organism could have with it is related to certain processes: allergies, acute and chronic intestinal diseases, obesity and metabolic syndrome, neurological diseases, dermatitis and other alterations in the dermis and even some types of cancer.

In this sense, this Postgraduate Diploma in Microbiota in Neonatology and Pediatrics, provides easy access to information and interest among the general population on issues related to the Microbiota, its Eubiosis and Dysbiosis and problems related to them. It also address Probiotics and Prebiotics with the growing market launch of new products with very specific strains for very specific problems and diseases, etc.

All of this makes it necessary for Physiotherapy professionals to be up to date with all the scientific advances in this regard. This allows them to offer the pediatric or neonatal patient a more accurate treatment, guiding them to recovery and maintaining the bacterial Eubiosis through physical therapy and as a means to maintain a good state of health, in addition to collaborating positively with the recommended medical treatment.

This **Postgraduate Diploma in Microbiota in Neonatology and Pediatrics** contains the most complete and up-to-date scientific program on the market. The most important features include:

- ♦ Practical cases presented by experts in Microbiota in Neonatology and Pediatrics
- ♦ The graphic, schematic, and eminently practical contents with which they are created, provide scientific and practical information on the disciplines that are essential for professional practice
- ♦ Latest information on Microbiota in Neonatology and Pediatrics
- ♦ It contains practical exercises where the self-evaluation process can be carried out to improve learning
- ♦ Special emphasis on innovative methodologies in Microbiota in Neonatology and Pediatrics
- ♦ All of this will be complemented by 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



*Improve your knowledge in Human Microbiota through this program, where you will find the best teaching material with real cases"*

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*This Postgraduate Diploma may be the best investment you can make when choosing a refresher program for two reasons: in addition to updating your knowledge in Microbiota in Neonatology and Pediatrics, you will obtain a Postgraduate Diploma from TECH Technological University"*

The program includes, in its teaching staff, professionals belonging to the field of medicine and physiotherapy, who bring to this training the experience of their work, in addition to recognized specialists from prestigious reference societies and universities.

The multimedia content, developed with the latest educational technology, will provide the professional with situated and contextual learning, i.e., a simulated environment that will provide immersive training programmed to train in real situations.

The design of this program focuses on Problem-Based Learning, which means the student must try to solve the different real-life situations of that arise throughout the academic program. For this purpose, the professional will be assisted by an innovative interactive video system created by renowned and experienced experts in microbiota and with extensive teaching experience.

*The Postgraduate Diploma allows you to train through simulated environments, which provide immersive learning programmed to train for real situations.*

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



# 02 Objectives

The main objective of the program is the development of theoretical and practical learning, so that the professional gets to master in a practical and rigorous way the study of Microbiotics in the daily practice of their profession. In this sense, the Postgraduate Diploma in Microbiota in Neonatology and Pediatrics responds to the continuous demand of professionals for quality training, which serves as a means to use physical therapy as a preventive or therapeutic tool in maintaining the health of their neonatal or pediatric patients.







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*This program is designed with the use of the latest educational technology, to contribute with quality and confidence to decision making in this innovative field"*



## General Objectives

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- This course fulfills a need of today's society, a quality and up-to-date training program that allows the use of microbiological therapy as a preventive or therapeutic tool towards maintaining good health
- Offer a complete and wide vision of the current situation in the area of the Human Microbiota, in its widest sense, the importance of the balance of this Microbiota as a direct effect on our health, with the multiple factors that influence it positively and negatively
- Argue with the backing of scientific evidence how a high degree of importance is currently being given to the Microbiota and its interaction with many non-digestive, autoimmune pathologies or its relationship with the dysregulation of the immune system, the prevention of diseases, and as a support to other medical treatments
- Promote work strategies based on the integral approach of the patient as a reference model, not only focusing on the symptomatology of the specific pathology, but also looking at its interaction with the Microbiota and how it may be influencing it
- Encourage professional stimulation through continuing education and research



*Make the most of the opportunity and take the step to get up-to-date on the latest developments in Microbiota in Neonatology and Pediatrics”*





## Specific Objectives

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### Module 1. Microbiota. Microbiome. Metagenomics

- ♦ Know the relationship between the Microbiota and the Microbiome and their most accurate definitions
- ♦ Understand in depth the concepts of symbiosis, commensalism, mutualism, and parasitism
- ♦ Delve into the different types of Human Microbiota and know their generalities
- ♦ Delve into the aspects that trigger the balance and imbalance of the Microbiota

### Module 2. Microbiota in Neonatology and Pediatrics

- ♦ Know the mother-infant Symbiosis
- ♦ Understand the factors influencing the Intestinal Microbiota of the mother in the gestational stage and at the time of delivery
- ♦ Understand the influence of the type of delivery on the microbiota of the neonatal
- ♦ Understand the influence of the type of breastfeeding on the infant's microbiota
- ♦ Know the clinical applications of Probiotics and Prebiotics in the pediatric patient
- ♦ Understand the influence of treatment with antibiotics and other psychotropic drugs on the Microbiota of the baby
- ♦ Deepen in the current lines of research on the subject

### Module 3. Probiotics, Prebiotics, Microbiota and Health

- ♦ Delve into probiotics, their definition, history, mechanisms of action
- ♦ Delve into prebiotics, their definition, types of prebiotics, and mechanisms of action
- ♦ Know the clinical applications of probiotics and prebiotics in Gastroenterology
- ♦ Know the Clinical Applications of Endocrinology and Cardiovascular Disorders
- ♦ Understand the clinical applications of probiotics and prebiotics in Urology
- ♦ Understand the clinical applications of probiotics and prebiotics in Gynecology
- ♦ Know the clinical applications of Probiotics and prebiotics in Immunology Autoimmunity, Pneumology, Dermatology, Vaccines
- ♦ Know the clinical applications of probiotics and prebiotics in nutritional diseases
- ♦ Know the clinical applications of probiotics and prebiotics in neurological diseases, mental health, and elderly
- ♦ Understand the clinical applications of probiotics and prebiotics in critically ill cancer patients
- ♦ Understand the use of dairy products as a natural source of Probiotics and Prebiotics
- ♦ Delve into the safety and legislation in the use of Probiotics

# 04

# Course Management

The program's teaching staff includes leading specialists in Human Microbiota and other related areas, who bring their years of work experience to this training program. In addition, other specialists of recognized prestige participate in its design and elaboration, completing the program in an interdisciplinary manner. All of this, with the aim of providing physiotherapists with the most complete information and contents of the educational scene so that they can practice their profession with greater guarantees of success and care for neonatal and pediatric patients thanks to their in-depth knowledge of the functioning of their microbiota.





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*Learn the latest advances in physical treatments for microbiota-related pathologies in children and adolescents from leading professionals with this complete program”*

## Management



### Ms. Fernández Montalvo, María Ángeles

- Parapharmacy Manager, Nutrition and Natural Medicine Practitioner
- Degree in Biochemistry from the University of Valencia
- Postgraduate Diploma in Nutrition, Dietetics, and Diet Therapy
- Expert in Microbiological Food Analysis
- Expert in Nutrition, Food, and Cancer. Prevention and Treatment
- Expert in Vegetarian, Clinical, and Sports Nutrition
- Specialist in food intolerances and the study of the intestinal microbiota.
- Numerous courses on Intestinal microbiota, methods of analysis, and applications
- Diploma in Natural and Orthomolecular Medicine
- Expert in the current use of Nutricosmetics and Nutraceuticals in general
- Expert in point-of-sale management in Pharmacies and Parapharmacies
- Member of the Spanish Society of Probiotics and Prebiotics (SEPyP)
- Member of the Spanish Society of Dietetics (SEDCA)
- Member of the Spanish Society of Nutrition (SEÑ)

## Professors

### Dr. Lombó Burgos, Felipe

- ♦ PhD in Biology from the University of Oviedo
- ♦ Head professor in this university

### Dr. López López, Aranzazu

- ♦ Ph.D. in Biological Sciences
- ♦ Researcher in oral microbiology at FISABIO foundation
- ♦ Public Health Research Center of Valencia

### Dr. Méndez García, Celia

- ♦ Doctorate in Microbiology from the University of Oviedo
- ♦ Research at Novartis Laboratories (Boston)

### Dr. Gonzalez Rodríguez, Silvia Pilar

- ♦ PhD in Medicine and Surgery from the University of Alcalá de Henares. Gynecology Specialist.
- ♦ Medical Subdirector, Research Coordinator and Clinical Chief of the Menopause and Osteoporosis Unit at the Velázquez Medical Cabinet (Madrid)

### Dr. Álvarez García, Verónica

- ♦ Degree in Medicine
- ♦ Digestive system specialist at the Central Hospital of Asturias (HUCA).

### Dr. Solís Sánchez, Gonzalo

- ♦ Neonatologist at the Hospital Universitario Central de Asturias (HUCA)
- ♦ Researcher, Associate Professor of the University of Oviedo

### Dr. Suárez Rodríguez, Marta

- ♦ Neonatologist of the Central University Hospital of Asturias (HUCA)
- ♦ Researcher and Professor of the Professional Master's Degree in Early Care and the Professional Master's Degree in Critical Care Nursing at the University of Oviedo and other training courses.

### Dr. Díaz Martín, Juan José

- ♦ Pediatric gastroenterologist at the Central Hospital of Asturias (HUCA)
- ♦ Member of the Spanish Society of Pediatric Gastroenterology, Hepatology, and Nutrition
- ♦ Associate Professor of Pediatrics at the University of Oviedo

### Dr. Fernández Madera, Juan

- ♦ Degree in Medicine
- ♦ Specialist in Allergology and Clinical Immunology
- ♦ Specialist in Sports Medicine

05

# Structure and Content

The structure of the contents has been designed by a team of professionals from the best hospital centers and universities in the country, who are aware of the relevance of up-to-date training to be able to prevent, detect, and treat pathologies related to alterations of the Human Microbiota, and are committed to quality teaching through new educational technologies. All of this, with the objective of training physiotherapists to be much more competent and prepared to administer treatments that help and favor the microbiome of patients at the same time.







“

*This Postgraduate Diploma in Microbiota in Neonatology and Pediatrics contains the most complete and up-to-date scientific program on the market”*

## Module 1. Microbiota. Microbiome. Metagenomics

- 1.1. Definition and Relationship Between Them
- 1.2. Composition of the Microbiota: Types, Species and Strains
  - 1.2.1. Characteristics and Main Functions
  - 1.2.2. Groups of Microorganisms that Interact with Humans: Bacteria, Fungi, Viruses, and Protozoa
  - 1.2.3. Key Concepts; Symbiosis, Commensalism, Mutualism, Parasitism
  - 1.2.4. Autochthonous Microbiota
- 1.3. Different Human Microbiota. General Overview of Eubiosis and Dysbiosis
  - 1.3.1. Gastrointestinal Microbiota
  - 1.3.2. Oral Microbiota
  - 1.3.3. Skin Microbiota
  - 1.3.4. Respiratory Tract Microbiota
  - 1.3.5. Urinary Tract Microbiota
  - 1.3.6. Reproductive System Microbiota
- 1.4. Factors that Influence Microbiota Balance and Imbalance
  - 1.4.1. Diet and Lifestyle. Gut-Brain Axis
  - 1.4.2. Antibiotic Therapy
  - 1.4.3. Epigenetic-Microbiota Interaction. Endocrine Disruptors
  - 1.4.4. Probiotics, Prebiotics, Symbiotics. Concepts and Overviews
  - 1.4.5. Fecal Transplant, Latest Advances

## Module 2. Microbiota in Neonatology and Pediatrics

- 2.1. Mother-Child Symbiosis.
- 2.2. Influencing Factors on the Gut Microbiota of the Mother During Pregnancy and During Birth. Influence of the Type of Delivery on the Microbiota of the New-born
- 2.3. Type and Duration of Breastfeeding, Influence on the Infant's Microbiota
  - 2.3.1. Breast Milk: Composition of the Breast Milk Microbiota. Importance of Breastfeeding in the New-born's Microbiota
  - 2.3.2. Artificial Breastfeeding. Use of Probiotics and Prebiotics in Infant Milk Formulas



- 2.4. Clinical Applications of Probiotics and Prebiotics in Pediatric Patients
  - 2.4.1. Digestive: Functional Digestive Disorders, Diarrhea, Necrotizing Enterocolitis. Intolerances
  - 2.4.2. Digestive: Respiratory and ENT, Atopic Diseases, Metabolic Diseases Allergies
- 2.5. Influence of Antibiotic and other Psychotropic Treatment on the Microbiota of the Infant
- 2.6. Current Lines of Research

### Module 3. Probiotics, Prebiotics, Microbiota and Health

- 3.1. Probiotics: Definition, History, Mechanisms of Action
- 3.2. Prebiotics: Definition, Types of Prebiotics (Starch, Inulin, FOS Oligosaccharides), Mechanisms of Action
- 3.3. Clinical Applications of Probiotics and Prebiotics in Gastroenterology
- 3.4. Clinical Applications of Endocrinology and Cardiovascular Disorders
- 3.5. Clinical Applications of Probiotics and Prebiotics in Urology
- 3.6. Clinical Applications of Probiotics and Prebiotics in Gynecology
- 3.7. Clinical Applications of Probiotics and Prebiotics in Immunology. Autoimmunity, Pneumology, Dermatology, Vaccines
- 3.8. Clinical Applications of Probiotics and Prebiotics in Nutritional Diseases. Obesity and Eating Disorders. Metabolism, Malnutrition, and Malabsorption of Nutrients
- 3.9. Clinical Applications of Probiotics and Prebiotics in Neurological Diseases. Mental Health Old Age
- 3.10. Clinical Applications of Probiotics and Prebiotics in Critically Ill Patients. Cancer
- 3.11. Dairy Products as a Natural Source of Probiotics and Prebiotics. Fermented Milk
- 3.12. Safety and Legislation in the Use of Probiotics



*A unique, key, and decisive training experience to boost your professional development"*



# 05 Methodology

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

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





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

## At TECH we use the Case Method

What should a professional do in a given situation? Throughout the program, 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. Physiotherapists/kinesiologists learn better, faster, and more sustainably over time.

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



According to Dr. Gérvas, the clinical case is the annotated presentation of a patient, or group of patients, which becomes a "case", an example or model that illustrates some peculiar clinical component, either because of its teaching power or because of its uniqueness or rarity. It is essential that the case is based on current professional life, trying to recreate the real conditions of professional physiotherapy 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. Physiotherapists/kinesiologists who follow this method not only grasp concepts, but also develop their mental capacity, by evaluating real situations and applying their knowledge.
2. The learning process has a clear focus on practical skills that allow the physiotherapist/kinesiologist to better integrate into the real world.
3. Ideas and concepts are understood more efficiently, given that the example situations are based on real-life.
4. 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 Harvard case method with the best 100% online teaching methodology available: Relearning.

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



*The physiotherapist/kinesiologist 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 we trained more than 65,000 physiotherapists/kinesiologists with unprecedented success in all clinical specialties, regardless of the workload. Our pedagogical methodology is developed in a highly competitive environment, with a university student body with a strong socioeconomic profile and an average age of 43.5 years old.

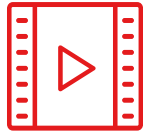
*Relearning will allow you to learn with less effort and better performance, involving you more in your training, developing a critical mindset, defending arguments, and contrasting opinions: a direct equation for success.*

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 our 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 really 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.



#### Physiotherapy Techniques and Procedures on Video

TECH brings students closer to the latest techniques, the latest educational advances and to the forefront of current Physiotherapy 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 them as many times as you want.



#### Interactive Summaries

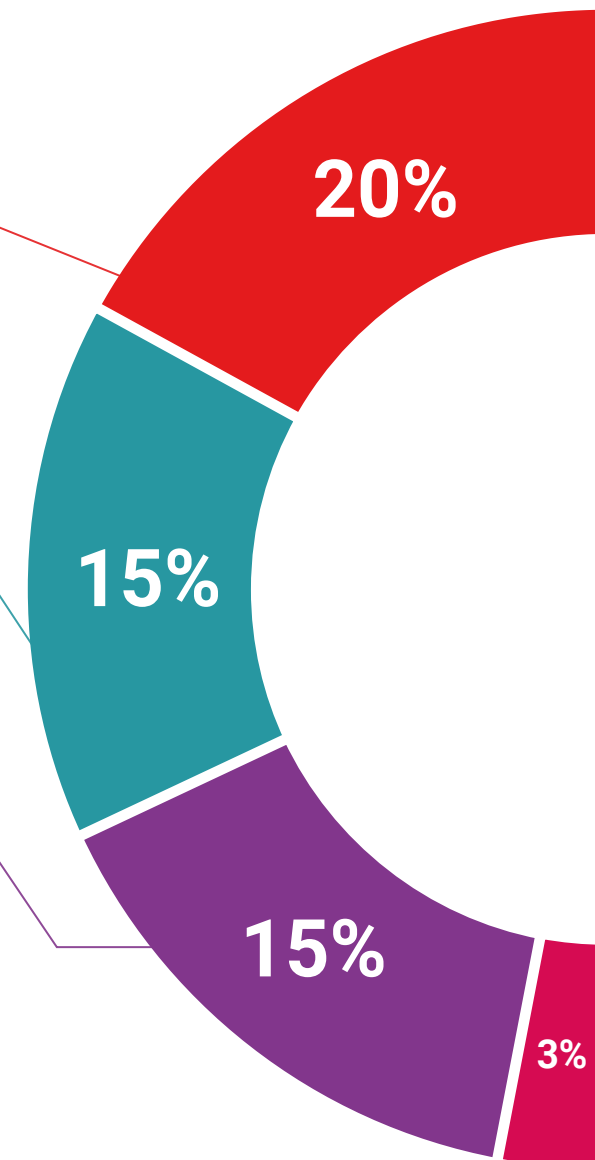
The TECH team presents the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

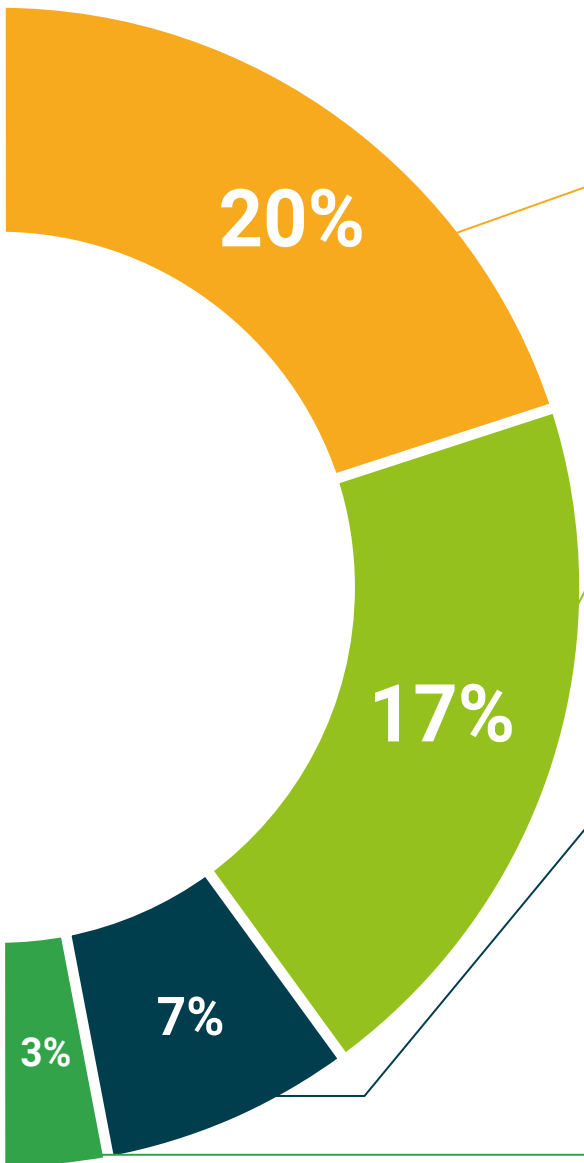
This unique multimedia content presentation training system was awarded by Microsoft as a "European Success Story"



#### 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 on the usefulness of learning by observing experts. The system known as Learning from an Expert strengthens knowledge and memory, and generates confidence in future difficult decisions.



#### Quick Action Guides

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



# 06 Certificate

The Postgraduate Diploma in Microbiota in Neonatology and Pediatrics guarantees, in addition to the most rigorous and training, access to a Postgraduate Diploma degree issued by TECH Technological University.



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

This **Postgraduate Diploma in Microbiota in Neonatology and Pediatrics** 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 certificate 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 Microbiota in Neonatology and Pediatrics**

Official N° of Hours: **425 h.**



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

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



**Postgraduate Diploma**  
Microbiota in Neonatology  
and Pediatrics

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

# Postgraduate Diploma

## Microbiota in Neonatology and Pediatrics