

# Postgraduate Certificate

## Microbiology in Antibiotic Therapy





## Postgraduate Certificate Microbiology in Antibiotic Therapy

Course Modality: Online

Duration: 2 months.

Endorsed by: TECH Technological University

5 ECTS Credits

Hours 125 hours.

Website: [www.techtute.com/medicine/postgraduate-certificate/microbiology-antibiotic-therapy](http://www.techtute.com/medicine/postgraduate-certificate/microbiology-antibiotic-therapy)

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# 01

# Introduction

Microbiology is a growing science that provides insight into the importance of microorganisms and their role in this world. However, these microorganisms are also the cause of numerous pathologies that affect human beings, which is why it is important for healthcare professionals to be constantly recycling their training. In this Postgraduate Certificate, physicians will be able to update their knowledge in the field of microbiology in antibiotherapy and discover new techniques to practice their profession in a more complete way..



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*This Postgraduate Certificate for Microbiology in Antibiotic Therapy will generate a sense of security in the performance of your profession, which will help you to grow personally and professionally"*

The fact that only 1% of the microorganisms that exist in the world are known means that we are facing a booming science, of which there is still much to be discovered. The last decade has been important in the evolution of microbiology, as new technological advances, such as nanotechnology, have made great strides in this field.

Although microbiology is used for every field we can imagine, one of the main fields of study has to do with health, since it can help to alleviate the major diseases that affect people anywhere in the world, helping the progress of health and improving the quality of life.

This program is designed to facilitate the professional's update in the clinical microbiological bases to improve the antibiotic therapy approach to their patients, through the latest educational technology, 100% online. Designed for practicing professionals who cannot leave their healthcare activity to get up to date, the access to the contents is agile and simple to facilitate learning and optimize the effort.

In the field of microbiology, this Postgraduate Certificate focuses on the study of its four main branches: parasitology, mycology, bacteriology and virology, using the latest diagnostic methods.

Nevertheless, it is also important to make known the new advances that have been made in antibiotic therapy and the new microbiology techniques in this field, with the aim of achieving effective control of antibiotic resistance. We cannot forget that resistance to these drugs has become, according to the World Health Organization (WHO), one of the greatest threats to global health, food security and development..

To this end, this training course endorses the main advances in this field with a didactic program that places it as one of the best on the market and gives the professional the keys to act in the most accurate way in the diagnosis of their patients.

This Postgraduate **Certificate in Microbiology in Antibiotic Therapy** contains the most complete and up-to-date scientific program on the market. The most important features of the program include:

- ♦ The development of more than 75 case studies presented by experts in Microbiology in Antibiotic Therapy. 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.
- ♦ The latest news on Microbiology in Antibiotic Therapy.
- ♦ The content of practical exercises where the self-evaluation process can be carried out to improve learning.
- ♦ Special emphasis is placed on innovative methodologies in Microbiology in Antibiotic Therapy.
- ♦ 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.



*Update your knowledge through the program of the Postgraduate Certificate in Microbiology in Antibiotic Therapy"*

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*This Postgraduate Certificate may be the best investment you can make in the selection of an updating program for two reasons: besides updating your knowledge in Microbiology in Antibiotic Therapy, you will obtain a Postgraduate Certificate issued by TECH Technological University"*

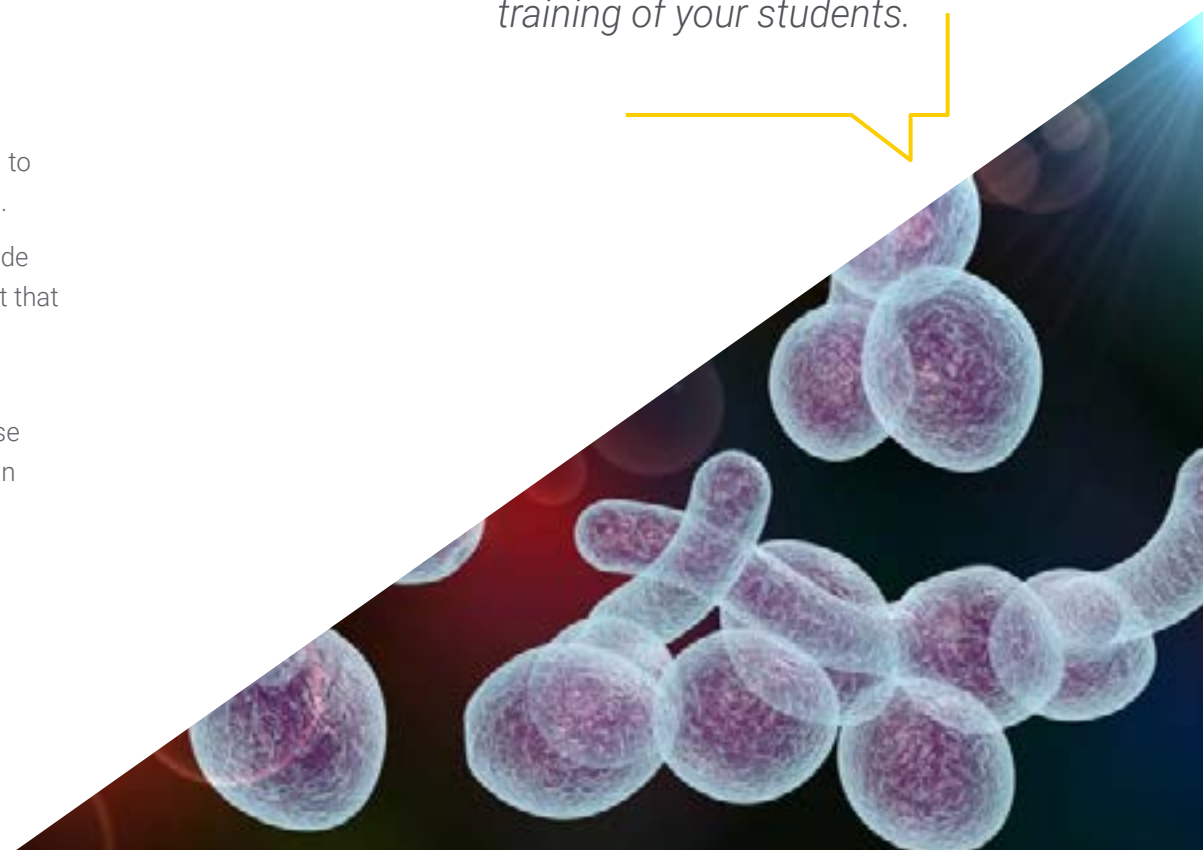
Its teaching staff includes professionals belonging to the field of microbiology in antibiotic therapy, who bring to this training the experience of their work, in addition to recognized specialists belonging to reference societies and prestigious universities.

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 program to train in real situations.

This program's design is based on problem-based learning, by means of which the professional must try to solve the different professional practice situations that arise during the course university. For this purpose, the professional will be assisted by an innovative interactive video system developed by recognized experts in the field of Microbiology in Antibiotic Therapy and with great experience.

*Increase your confidence in decision making by updating your knowledge through this course.*

*Take the opportunity to learn about the latest advances in Microbiology in Antibiotic Therapy, and improve the training of your students.*



# 02 Objectives

The main goal of the Postgraduate Certificate is the improvement of health professionals, based on the acquisition of the most up-to-date and innovative scientific knowledge in the field of Microbiology in Antibiotic Therapy that will allow them to develop the skills for the correct and rational use of these drugs, making their daily clinical practice a bastion of the standards of the best scientific evidence available, with a critical, innovative, multidisciplinary and integrative sense.





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*This program will provide you with a sense of confidence in your medical practice, which will help you grow personally and professionally”*


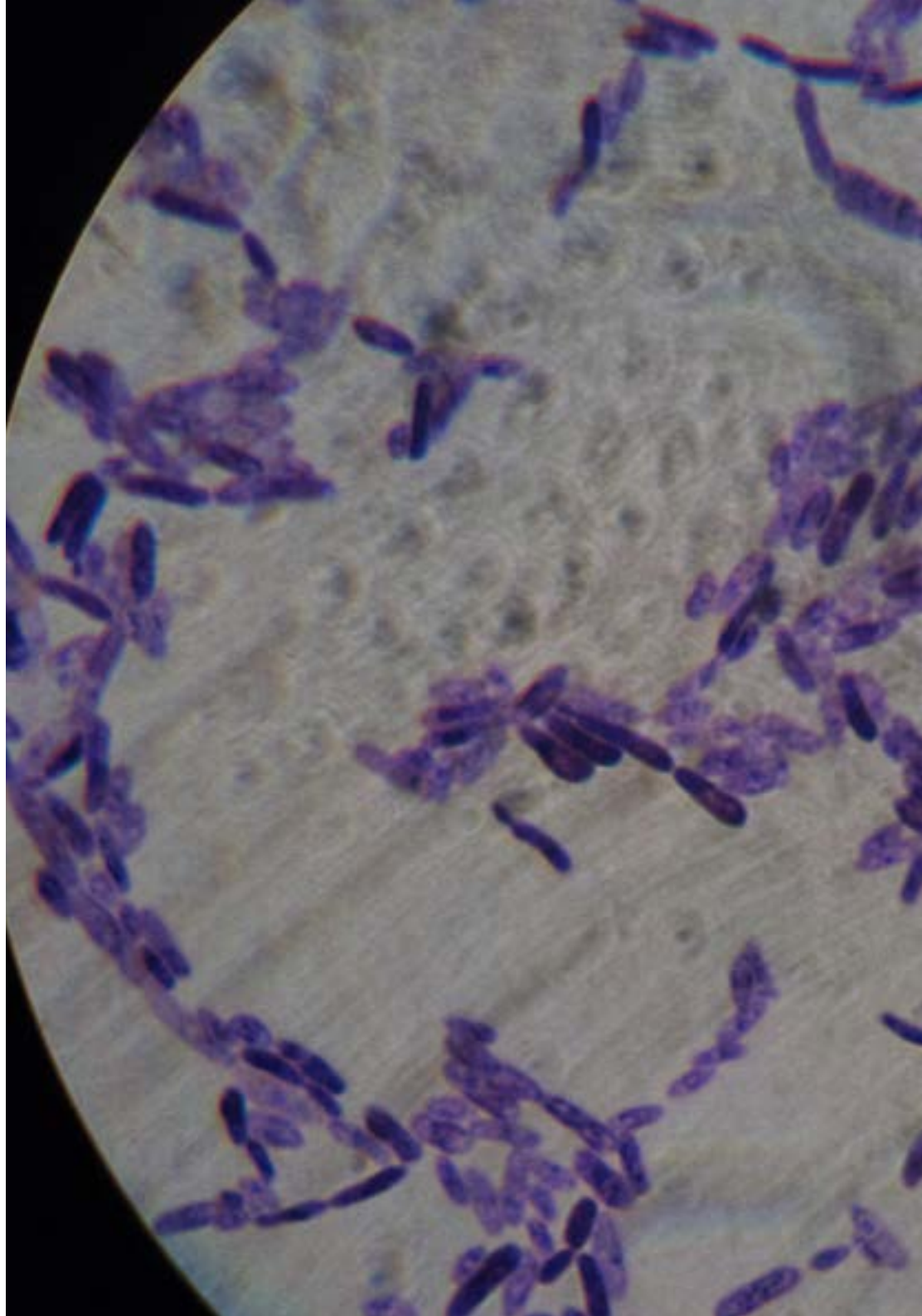


## General Objective

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- Guarantee the professional improvement, through the currentness, novelty and depth of the best scientific evidence on microbiology for the correct use of these drugs and the adequate treatment of infectious diseases with a multidisciplinary and integrative approach that facilitates the control of these pathologies.

*Update your knowledge through the  
Microbiology in Antibiotic Therapy  
program.*

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## Specific Objectives

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- Provide students with advanced, in-depth, up-to-date, and multidisciplinary information that allows them to comprehensively approach the health-infectious disease process, the use of antibiotics, and antibiotic resistance.
- Explain the complex interrelationships between the host, the microorganism, and the antibiotic to be used.
- Address the important role of microbiology and the diagnosis and control of infectious diseases.
- Address the most important elements among the resistance mechanisms of superbugs and other germs in a general sense.
- Describe the most important elements of the absorption, transportation, distribution, metabolism, and excretion of antibiotics.

# 04

# Course Management

Renowned and recognized medical specialists with numerous publications, teaching experience, and professional experience in many countries, where many of the diseases studied have a high morbimortality, participate in the teaching program. The teaching staff is made up of a multidisciplinary team from various medical specialties, as internal medicine, pediatrics, general surgery, gynecology and obstetrics, microbiology, pathological anatomy and pharmacology, among others.





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*Learn about , the latest advances in Antibiotic Therapy and Antibiotic Resistance from leading professionals"*

## Management



### Dr. Bécares Martínez, Francisco Javier

- ♦ Head of the Pharmacy Department Jiménez Díaz Foundation Hospital
- ♦ Graduate in Pharmacy. University of Salamanca.
- ♦ Specialist in Hospital Pharmacy. Severo Ochoa Hospital
- ♦ Specialist in Clinical Analysis. San Carlos Clinical Hospital
- ♦ Degree in Medicine. Complutense University of Madrid.
- ♦ Assistant pharmacist, specialist in Hospital Pharmacy at the Fundación Jiménez Díaz University Hospital.
- ♦ Associate Professor in Health Sciences at Complutense University of Madrid
- ♦ Collaborating Professor at the University School of Nursing of the Fundación Jiménez Díaz.

## Professors

### Ardizone Jiménez, Beatriz

- ♦ Degree in Pharmacy at Complutense University of Madrid
- ♦ Master's Degree in Applied Microbiology in Public Health and Infectious Diseases Research
- ♦ Resident Intern Pharmacist in Hospital Pharmacy at the Fundación Jiménez Díaz University Hospital.
- ♦ X Practical Course in Dermopharmacy, Faculty of Pharmacy, Complutense University of Madrid.
- ♦ XIX Course in Initiation to Research in Microbiology.
- ♦ Antimicrobial Stewardship Course, Menéndez Pelayo International University, Santander, Spain.

### García Jiménez, Laura

- ♦ Specialist Pharmacist in Hospital Pharmacy. Adjunct of Outpatient Area. HU Fundación Jiménez Díaz.
- ♦ Residency in Hospital Pharmacy. HU Fundación Jiménez Díaz.
- ♦ Specialist Pharmacist in Hospital Pharmacy. Onco-hematology Phase I Clinical Trials Unit Pharmacy. Start Madrid FJD. HU Fundación Jiménez Díaz.
- ♦ Degree in Pharmacy. Faculty of Pharmacy, University of Salamanca.
- ♦ Rational use of parenteral nutrition course.
- ♦ Course on Safety and approach to restraints in AMAS residential centers.
- ♦ Good Clinical Practice Guidelines (GCP) Online Course. Andalusian initiative of advanced therapies.
- ♦ Joaquim Bonal Clinical Pharmacy Course. Santa Creu and Sant Pau Hospital.



**Ortega Gómez, José Manuel**

- ◆ Director of Hospital Pharmacy Specialist in Hospital Pharmacy, HM Hospitales Madrid
- ◆ Specialist in Hospital Pharmacy, HM Hospitales Group
- ◆ Specialist in Hospital Pharmacy, HM Sanchinarro (Madrid) 2010-2012
- ◆ Specialist in Hospital Pharmacy, La Paz University Hospital (Madrid) 2006-2010
- ◆ Specialist in Hospital Pharmacy, Fundación Jiménez Díaz (Madrid) 1998-2006
- ◆ Specialist in Hospital Pharmacy, Hospital HM Madrid (Madrid) 1995-1998
- ◆ Specialist in Hospital Pharmacy, Hospital del Río Hortega (Valladolid) 1992-1994

# 03

## Structure and Content

The teaching program has been designed by a group of professors and medical professionals from various medical specialties, with extensive medical, research and teaching experience in several countries in Europe, Africa, Central and South America, interested in integrating the latest and most current scientific knowledge of Microbiology in Antibiotic Therapy to ensure training and professional development to improve the daily clinical practice of professionals who care for patients or populations with infectious diseases.







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*This Postgraduate Certificate in Microbiology in Antibiotic Therapy contains the most complete and up-to-date scientific program on the market”*

## Module 1. Overview of Microbiology

- 1.1. General Elements of Microbiology.
  - 1.1.1. The Role of Microbiology in the Study of Infectious Diseases.
  - 1.1.2. Structure and Function of the Microbiology Laboratory.
  - 1.1.3. Indication and Interpretation of Microbiological Studies.
- 1.2. Virology.
  - 1.2.1. General Features of Viruses.
  - 1.2.2. Classification and the Main Viruses Affecting Humans.
  - 1.2.3. Emerging Viruses.
  - 1.2.4. Virology Studies.
- 1.3. Bacteriology: Current Concepts for Antibiotic Treatment.
  - 1.3.1. General Features of Bacteria.
  - 1.3.2. Classification and the Main Bacteria Affecting Humans.
  - 1.3.3. Microbiology Studies.
- 1.4. Mycology.
  - 1.4.1. General Features of Fungi.
  - 1.4.2. Classification and the Main Fungi Affecting Humans.
  - 1.4.3. Mycology Studies.
- 1.5. Parasitology.
  - 1.5.1. General Features of Parasites.
  - 1.5.2. Classification and the Main Parasites Affecting Humans.
  - 1.5.3. Parasitology Studies.
- 1.6. Microbiological Samples: Collection, Storage, and Transport.
  - 1.6.1. The Microbiological Sampling Process: Preanalytical, Analytical, and Postanalytical Stages.
  - 1.6.2. Sampling Requirements for the Main Microbiological Studies used in Daily Clinical Practice: Blood, Urine, Stool, Sputum.
- 1.7. Antibiogram: New Concepts for Interpretation and Utilization.



- 1.7.1. Traditional Antibigram Reading.
- 1.7.2. Interpreted Antibigram Reading and the Mechanisms of Novel Antimicrobial Resistance Phenotypes.
- 1.7.3. Antimicrobial Mapping and Resistance Patterns.
- 1.8. Rapid Diagnostic Methods: News about their Application.
  - 1.8.1. Rapid Diagnostic Methods for Viruses.
  - 1.8.2. Rapid Diagnostic Methods for Bacteria.
  - 1.8.3. Rapid Diagnostic Methods for Fungi.
  - 1.8.4. Rapid Diagnostic Methods for Parasites.
- 1.9. Molecular Biology in Microbiological Diagnostics: Its Role in the Future.
  - 1.9.1. Development and Application of Molecular Biology in Microbiological Methods.
- 1.10. Microbiology: Challenges to Improve Antibiotic Usage and Control Antibiotic Resistance.
  - 1.10.1. Challenges and Obstacles for Microbiological Diagnostics.
  - 1.10.2. Future Challenges of Microbiology Laboratory Management in the Correct and Rational Use of Antibiotics.
  - 1.10.3. Future Microbiological Techniques to Study Antibiotic Resistance.



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

05

# Methodology

This training program provides you with a different way of learning. Our methodology uses a cyclical learning approach: ***Re-learning***.

This teaching system is used 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 Re-learning, 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 would you do? Throughout the program, you will be presented with multiple simulated clinical cases based on real patients, where you will have to investigate, establish hypotheses and, finally, resolve the situation. There is abundant scientific evidence on the effectiveness of the method. Specialists learn better, faster, and more sustainably over time.

*With TECH you 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 potential 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 in professional medical 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. Students 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 student 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.



## Re-Learning Methodology

At TECH we enhance the Harvard case method with the best 100% online teaching methodology available: Re-learning.

Our 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, which represent a real revolution with respect to simply studying and analyzing cases.



*The physician 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 Re-learning method has managed to improve the overall satisfaction levels of professionals who complete their studies, with respect to the quality indicators of the best Spanish-speaking online university (Columbia University).

With this methodology we have trained more than 250,000 physicians 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.

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

In our program, learning is not a linear process, but rather a spiral (we 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.



In this program you will have access to the best educational material, prepared with you 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.

This content is then adapted in an audiovisual format that will create our way of working online, with the latest techniques that allow us to offer you high quality in all of the material that we provide you with.



#### Latest Techniques and Procedures on Video

We introduce you to the latest techniques, to the latest educational advances, to the forefront of current medical techniques. All this, in first person, with the maximum rigor, explained and detailed for your assimilation and understanding. And best of all, you can watch them as many times as you want.



#### Interactive Summaries

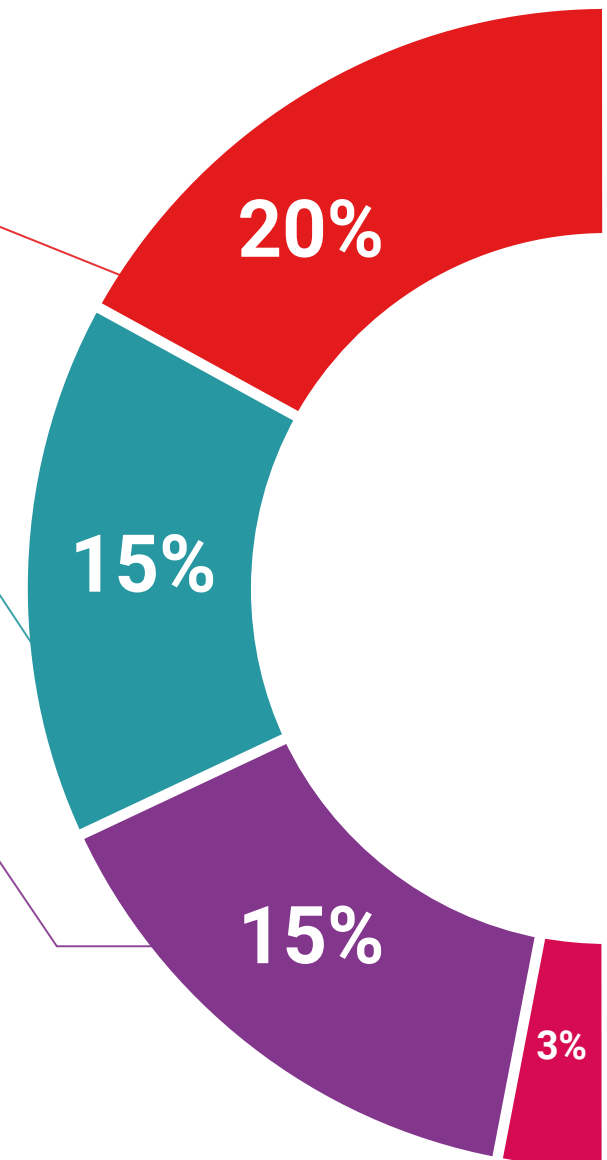
We present the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

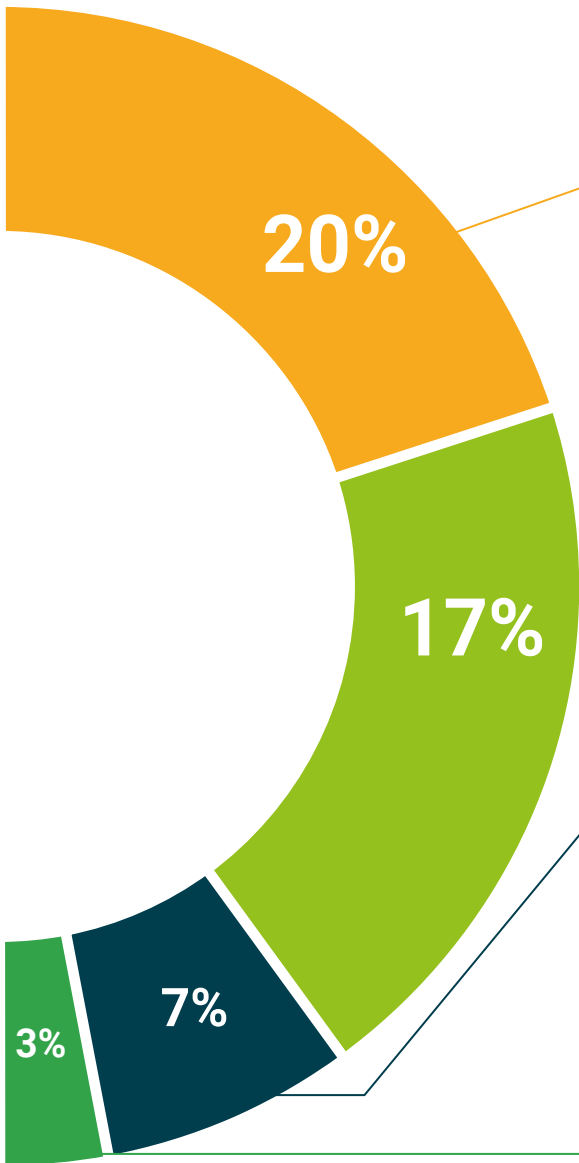
This unique multimedia content presentation training system was awarded by Microsoft as a "European Success Story".



#### Additional Reading

Recent articles, consensus documents, international guides. in our virtual library you will have access to everything you need to complete your training.





**Expert-Led Case Studies and Case Analysis**

Effective learning ought to be contextual. Therefore, we will present you with real case developments in which the expert will guide you through focusing on and solving the different situations: a clear and direct way to achieve the highest degree of understanding.



**Testing & Re-testing**

We periodically evaluate and re-evaluate your knowledge throughout the program, through assessment and self-assessment activities and exercises: so that you can see how you are achieving your 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 our future difficult decisions.



**Quick Action Guides**

We offer you the most relevant contents of the course in the form of worksheets or quick action guides. A synthetic, practical, and effective way to help you progress in your learning.



# 05 Certificate

The Postgraduate Certificate in Microbiology in Antibiotic Therapy guarantees you, in addition to the most rigorous and up-to-date training, access to a Postgraduate Certificate issued by TECH Technological University.



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*Successfully complete this training and receive your certificate without the hassle of travel or paperwork”*

This Postgraduate Certificate in Microbiology in Antibiotic Therapy contains the most complete and up-to-date scientific program on the market.

After the student has passed the assessments, they will receive their corresponding Postgraduate Certificate issued by TECH Technological University via tracked delivery.

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

Diploma: Postgraduate Certificate in Microbiology in Antibiotic Therapy

5 ECTS Credits

Nº Hours: 125



\*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

online training

development language

virtual classroom



**Postgraduate Certificate**  
Microbiology in  
Antibiotic Therapy

Course Modality: Online

Duration: 2 months.

Endorsed by: TECH Technological University

5 ECTS Credits

Hours 125 hours.

# Postgraduate Certificate

## Microbiology in Antibiotic Therapy

