

# Postgraduate Certificate

## Microbiological and Clinical Diagnosis in Infectious Diseases





## Postgraduate Certificate Microbiological and Clinical Diagnosis in Infectious Diseases

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

Website: [www.techtitute.com/us/pharmacy/postgraduate-certificate/microbiological-clinical-diagnosis-infectious-diseases](http://www.techtitute.com/us/pharmacy/postgraduate-certificate/microbiological-clinical-diagnosis-infectious-diseases)

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# 01

# Introduction

For pharmacists, it is very important to be up to date on the latest scientific evidence on diseases or pathologies of various kinds. Therefore, this TECH program in Microbiological and Clinical Diagnosis in Infectious Diseases will help you to get a more realistic and up-to-date view of this subject, from the first level material that you will have at your disposal, as well as from the excellent faculty that will teach the lessons. You will learn the latest techniques and developments in the field, and develop your knowledge and skills in infectious diseases, making you a successful pharmacist. A unique opportunity to specialise in a high-demand professional field.



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*With this Postgraduate Certificate, you have the opportunity to update your knowledge in a comfortable way and without renouncing the highest scientific standards, to incorporate the latest advances in the approach to infectious pathology in your daily pharmaceutical practice”*

Infectious diseases remain the leading cause of death and disability in the world. In 2016, of the total 56.4 million deaths worldwide, 33% were due to infectious diseases, 30% to cardiovascular diseases and 10% to cancer. The fight against disease will have two simultaneous fronts: infectious diseases and chronic non-communicable diseases.

Among the 17.3 million people who died from infections in 2016, the most frequent causes of death were lower respiratory infections (3.7 million), malaria (2.2 million), tuberculosis (1.3 million), diarrhea (1.4 million), and HIV/AIDS infection (1.1 million). The most important factors to consider in relation to infectious diseases are demographics, human behavior, technological and industrial development, economic variations in land use, intercontinental travelling and commerce, climate change, microbiotic adaptation and finally the disappearance or reduction of efficient public health measures.

These factors, interacting with each other, have conditioned that we should not consider any part of the planet reasonably isolated from the rest, nor impossible the appearance, reappearance or dissemination of imported or apparently eradicated infectious diseases in our environment.

The complex international epidemiological situation so far this century, exemplified by the deliberate release of bacillus anthracisspores, the emergence of West Nile virus, the epidemic of severe acute respiratory syndrome (SARS), the zoonotic spread of smallpox, the threat of pandemic influenza, the Ebola epidemic in Africa, the emergence of cases of yellow fever, Dengue and Cholera, the emergence of new arbovirolosis in the Americas region, such as Chikungunya and more recently Zika, together with morbidity from other endemic infectious diseases, such as HIV/AIDS, leptospirosis, tuberculosis, pneumonia and the increase in antibiotic resistance with the development of multi-resistant bacteria, highlight the unprecedented need to improve the process of training and development of human capital.

This **Postgraduate Certificate in Microbiological and Clinical Diagnosis of Infectious Diseases** contains the most complete and up-to-date program on the market. The most important features of the program include:

- ◆ Clinical cases presented by experts in Microbiological and Clinical Diagnosis of Infectious Diseases for Pharmacists
- ◆ 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
- ◆ New developments on Microbiological and Clinical Diagnosis of Infectious Diseases for Pharmacists
- ◆ Practical exercises where self-assessment can be used to improve learning
- ◆ An algorithm-based interactive learning system for decision-making in the clinical situations presented throughout the course
- ◆ 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



*Take advantage of the moment and update yourself in the management of infections from a pharmaceutical point of view"*

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*This Postgraduate Certificate is the best investment you can make in a program for two reasons: you will obtain a qualification from the largest digital university in the world, TECH, and you will acquire the best and most up-to-date education in Microbiological and Clinical Diagnosis in Infectious Diseases"*

Its faculty is made up of prestigious and renowned professionals, with a long history in health care, teaching and research, who have worked in many countries on several continents, developing a professional and teaching experience that they deliver in an extraordinary way in this program.

The methodological design of this program, developed by a multidisciplinary team of e-learning experts, integrates the latest advances in educational technology for the creation of numerous multimedia educational tools that allow the professional, based primarily on the problem-solving method, to face the solution of real problems in their daily clinical practice, which will allow them to progress in the acquisition of knowledge and the development of skills that will impact their future professional work.

It should be noted in this program that all of the contents generated, as well as the videos, self-evaluations, clinical cases and exams have been thoroughly reviewed, updated, and integrated by the teachers and the team of experts that make up the working group, to facilitate the learning process with a step-by-step approach in order to achieve the teaching program objectives.

*In this program you will learn about the new viral infections and diseases that subdue the world.*

*Don't miss the opportunity and get up to date on advances in the treatment of the infections to incorporate them into your daily medical practice.*



02

# Objectives

The fundamental purpose of the educational program is to specialize and improve the professional to achieve a deep theoretical mastery of the latest and most current scientific knowledge in the area of clinical infectious diseases, as well as the development of skills that allow them to approach the complex process of health and infectious diseases in individuals and communities more comfortably and safely in practice.





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*This program will generate a sense of confidence in the performance of pharmacy practice, which will help you grow personally and professionally"*



## General Objectives

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- ♦ Update or deepen your knowledge and develop your skills for daily clinical practice in healthcare, teaching or research roles in the field of infectious diseases in order to provide individual or group population care that allows for the improvement of health indicators
- ♦ Improve the medical attention and the overall health of patients with infectious diseases based on integral care, the application of the epidemiological clinical method and the correct use of antimicrobials in correspondence with the most up to date scientific evidence





## Specific Objectives

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- ♦ In-depth study of the latest clinical, diagnostic and therapeutic elements of the most lethal respiratory infections
- ♦ Explain the clinical, diagnostic and treatment elements of rare or uncommon infectious diseases



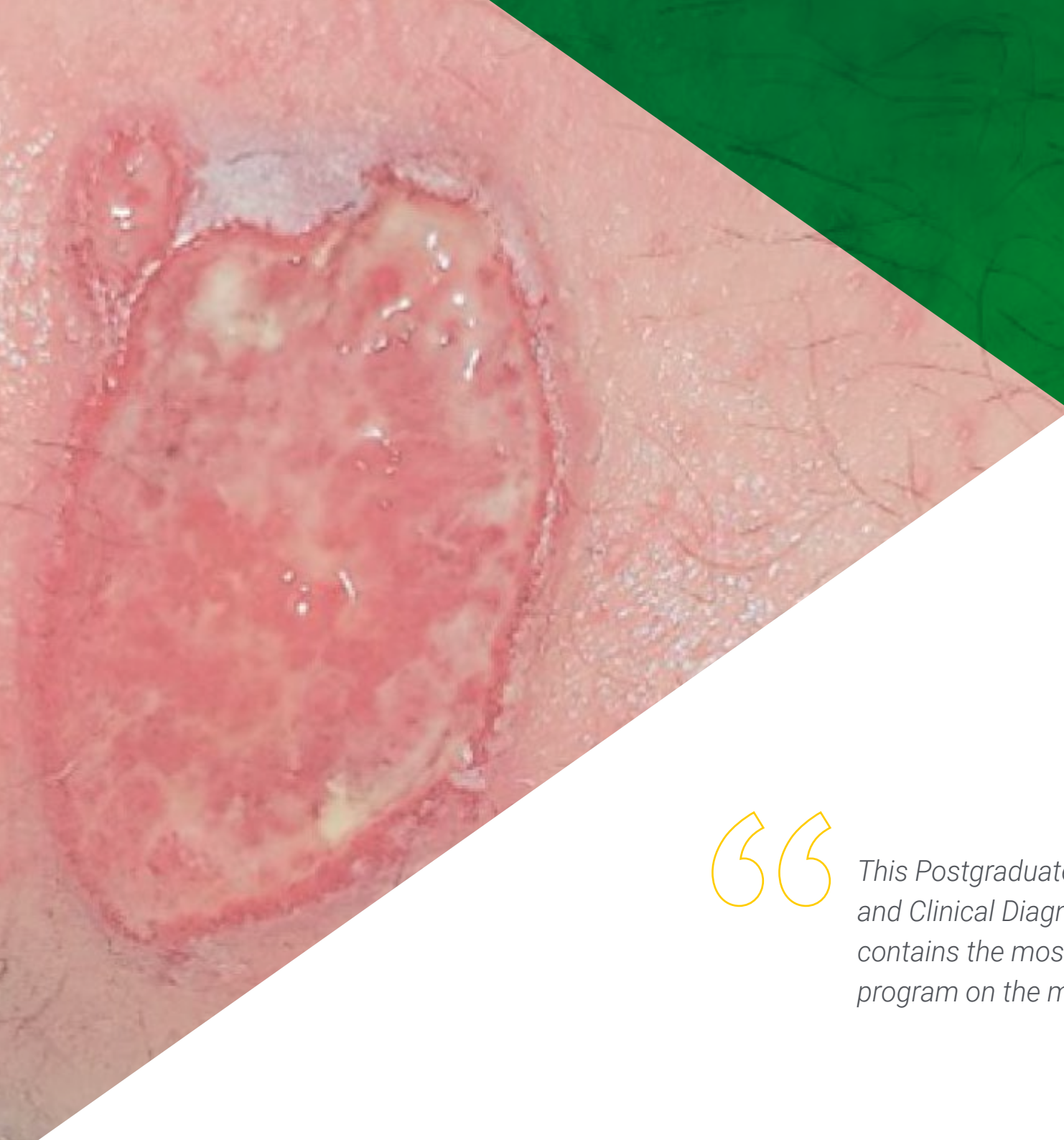
*Improve your daily practice as a pharmacist by taking advantage of the program offered in the Postgraduate Certificate in Microbiological and Clinical Diagnosis in Infectious Diseases"*

03

# Structure and Content

The educational program has been created by a group of professors and professionals in pharmacy and medicine from various medical specialties, with extensive research and teaching experience in several countries in Africa, Central and South America, interested in integrating the latest and most current scientific knowledge of clinical infectious diseases and antimicrobial therapeutics, 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 Microbiological and Clinical Diagnosis of Infectious Diseases contains the most complete and up-to-date program on the market”*

## Module 1. Microbiological Diagnosis and Other Examinations for Infectious Diseases

- 1.1. Organization, Structure and Functioning of the Microbiology Laboratory
  - 1.1.1. Organization and Structure of the Microbiology Laboratory
  - 1.1.2. Functioning of a Microbiology Laboratory
- 1.2. Principles of the Use of Microbiological Examinations in Patients with Infectious Pathologies The Process of Collecting Specimens
  - 1.2.1. The Role of Microbiological Studies in the Diagnosis of Infectious Diseases
  - 1.2.2. The Microbiological Sampling Process: Preanalytical, Analytical, and Postanalytical Stages
  - 1.2.3. Sampling Requirements for the Main Microbiological Studies used in Daily Clinical Practice: Blood, Urine, Stool, Sputum
- 1.3. Virological Studies
  - 1.3.1. Types of Virus and Their General Characteristics
  - 1.3.2. General Characteristics of Virological Studies
  - 1.3.3. Viral Culture
  - 1.3.4. Viral Genome Studies
  - 1.3.5. Studies of Antigens and Antibodies Against the Virus
- 1.4. Bacteriological Studies
  - 1.4.1. Classification of Bacteria
  - 1.4.2. General Characteristics of Bacteriological Studies
  - 1.4.3. Stains for Bacterial Identification
  - 1.4.4. The Study of Bacterial Antigens
  - 1.4.5. Cultivation Methods: General and Specific
  - 1.4.6. Bacteria That Need Special Study Methods
- 1.5. Mycological Studies
  - 1.5.1. Classification of Fungi
  - 1.5.2. Main Mycological Studies
- 1.6. Parasitological Studies
  - 1.6.1. Classification of Parasites
  - 1.6.2. Studies for Protozoa
  - 1.6.3. Studies for Helminths



- 1.7. Appropriate Interpretation of Microbiological Studies
  - 1.7.1. The Microbiological Clinical Interrelationship for the Interpretation of Microbiological Studies
- 1.8. Interpreted Reading of the Antibigram
  - 1.8.1. Traditional Interpretation of the Antibigram With Relation to the Sensitivity and Resistance to Antimicrobials
  - 1.8.2. Interpreted Reading of the Antibigram: Current Paradigm
- 1.9. Use of Microbial Map of an Institution
  - 1.9.1. What is a Microbial Map of an Institution?
  - 1.9.2. Clinical Application of the Microbial Map
- 1.10. Biosecurity
  - 1.10.1. Conceptual Definitions of Biosafety
  - 1.10.2. Importance of Biosafety for Health Services
  - 1.10.3. Universal Measures of Precaution
  - 1.10.4. Manage the Biological Waste in a Healthcare Institution
- 1.11. The Clinical Laboratory in the Study of Infectious Diseases
  - 1.11.1. Reactants of the Acute Phase
  - 1.11.2. Studies of Liver Function, Internal Environment, Coagulation and Renal Function in Sepsis
  - 1.11.3. Study of Inflammatory Liquids in the Diagnosis of Infections
  - 1.11.4. Biomarkers Usefulness in Clinical Practice
- 1.12. Imaging Studies for the Diagnosis of Infectious Pathology
  - 1.12.1. The Role of Imaging Studies in the Diagnosis of Infectious Diseases
  - 1.12.2. The Role of Ultrasound in the Integral Evaluation of a Patient with Sepsis
- 1.13. The Role of Genetic and Immunological Studies
  - 1.13.1. Studies of Genetic Illnesses and Their Predisposition of Infectious Diseases
  - 1.13.2. Immunological Studies on Immunosuppressed Patients
- 1.14. Usefulness of Pathological Anatomy Studies
  - 1.14.1. Alterations in Cytological Studies According to the Type of the Biological Agent
  - 1.14.1. Necropsy and Its Importance in Infectious Mortality
- 1.15. Assessment of the Severity of Infectious Diseases
  - 1.15.1. Prognosis Scales in the Care of Patients with Infectious Pathologies Based on Laboratory Studies and Clinical Elements
  - 1.15.2. SOFA Score Usefulness in the Current Day: Components of SOFA, What it Measures Usefulness in the Assessment of a Patient
  - 1.15.3. Main Complications in Infectious Diseases
- 1.16. Worldwide Campaign Against Sepsis
  - 1.16.1. Emergence and Evolution
  - 1.16.2. Objectives
  - 1.16.3. Recommendations and Impact
- 1.17. Bioterrorism
  - 1.17.1. Principle Infectious Agents Used in Bioterrorism
  - 1.17.2. International Regulations on the Management of Biological Samples



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

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.





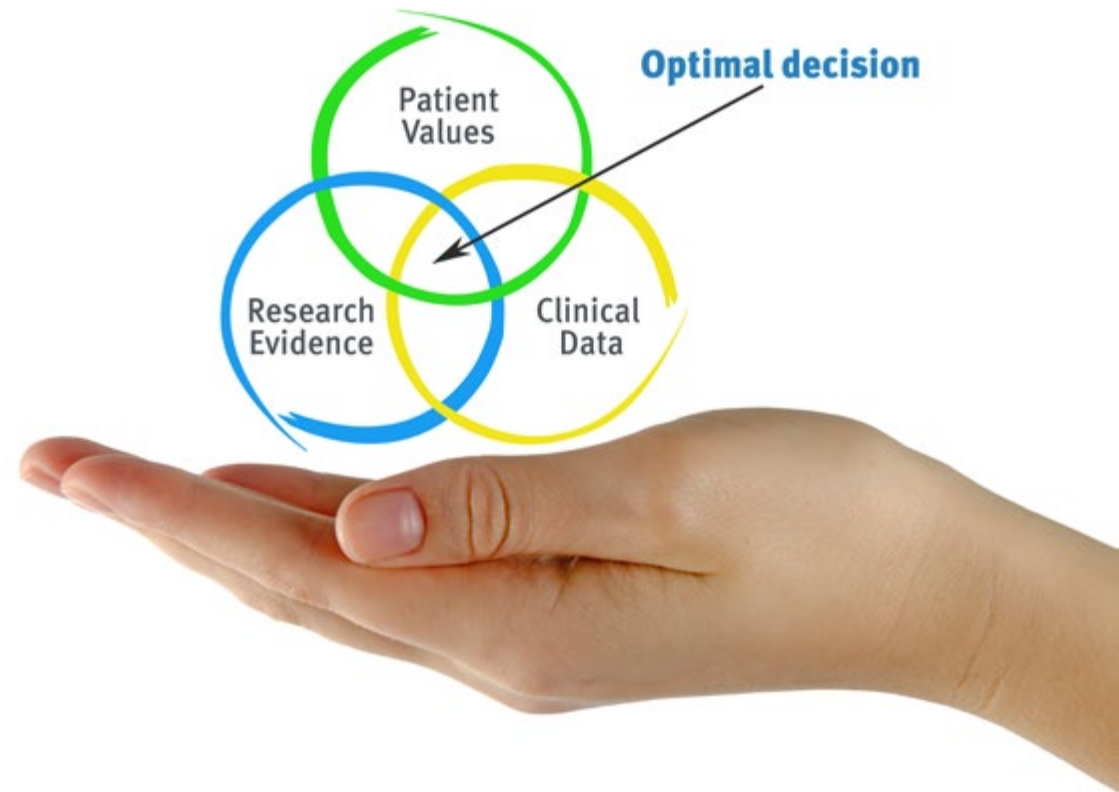


*Discover Relearning, a system that abandons conventional linear learning, to take you through cyclical teaching systems: a way of learning that has proven to be extremely effective, especially in subjects that require memorization"*

## At TECH we use the Case Method

What should a professional do in a given situation? Throughout the program, students will be confronted with multiple simulated clinical cases based on real patients, in which they will have to investigate, establish hypotheses and ultimately, resolve the situation. There is an abundance of scientific evidence on the effectiveness of the method. Pharmacists learn better, more quickly 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. Gervas, 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, attempting to recreate the actual conditions in a pharmacist's professional 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. Pharmacists who follow this method not only grasp concepts, but also develop their mental capacity, by evaluating real situations and applying their knowledge.
2. Learning is solidly translated into 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.



## Relearning Methodology

At TECH we enhance the case method with the best 100% online teaching methodology available: Relearning.

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.

*Pharmacists 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 115,000 pharmacists have been trained with unprecedented success in all clinical specialties, regardless of the surgical load. This pedagogical methodology is developed in a highly demanding environment, with a university student body with a high socioeconomic 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 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 (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 created specifically for the course by specialist pharmacists who will be teaching the course, so that the didactic development is highly specific and accurate.

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.



### Video Techniques and Procedures

TECH introduces students to the latest techniques, to the latest educational advances, to the forefront of current pharmaceutical care procedures. All of this, first hand, and explained and detailed with precision to contribute to assimilation and a better understanding. And best of all, you can watch them as many times as you want.



### Interactive Summaries

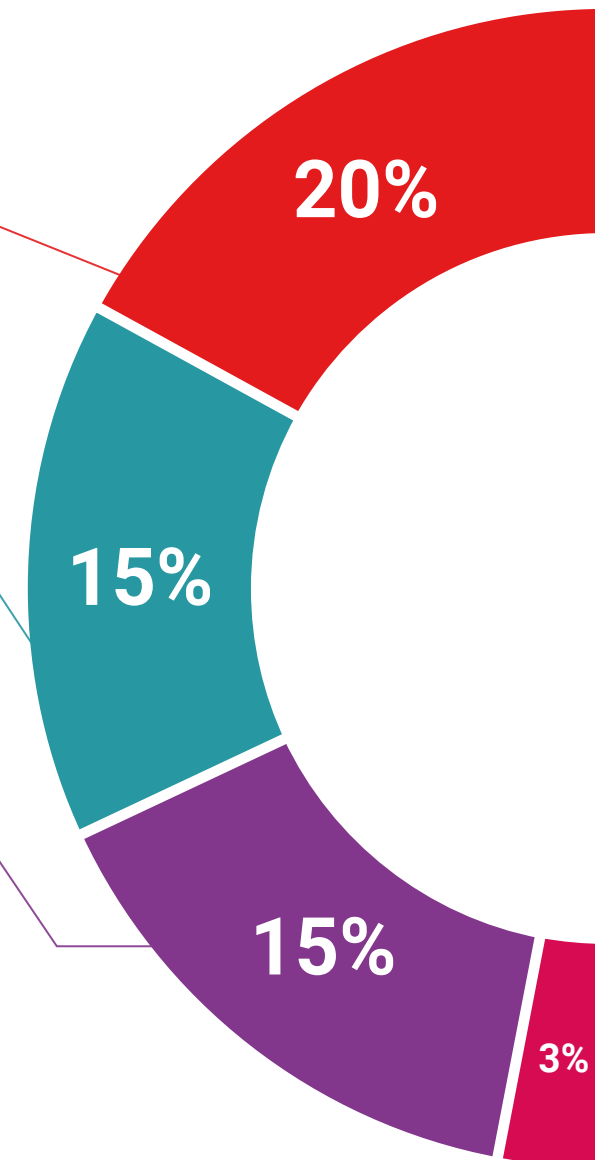
The TECH team presents the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

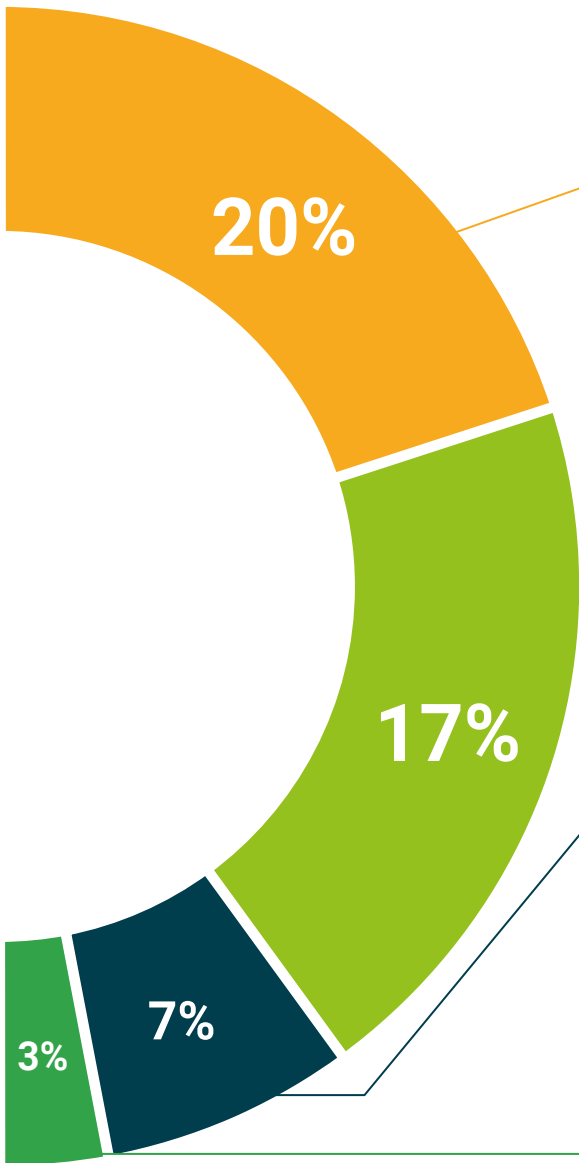
This unique multimedia content presentation training system was awarded by Microsoft as a "European Success Story".



### 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, 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 & 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.



05

# Certificate

The Postgraduate Certificate in Microbiological and Clinical Diagnosis in Infectious Diseases guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Certificate issued by TECH Technological University.





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

This **Postgraduate Certificate in Microbiological and Clinical Diagnosis in Infectious Diseases** contains the most complete and up-to-date 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 certificate 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.

Title: **Postgraduate Certificate in Microbiological and Clinical Diagnosis in Infectious Diseases**

Official N° of Hours: **150 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.

future  
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community commitment  
personalized service innovation  
knowledge present  
development language  
virtual classroom



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