





### Postgraduate Diploma

Chronic and Respiratory
Diseases in Clinical Practice

Course Modality: Online
Duration: 6 months

Certificate: TECH Technological University

Official No of hours: 450 h.

We bsite: www.techtitute.com/us/medicine/postgraduate-diploma/postgraduate-diploma-chronic-respiratory-diseases-clinical-practice

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# 01 Introduction

Clinical statistics cite respiratory infections as one of the main causes of death in both children and adults. The invasion by various viruses, bacteria and fungi in the immune and respiratory system can have serious consequences on the patient's health, especially in those suffering from chronic diseases, as it weakens their organism and makes them more vulnerable to being attacked by these pathogens. In this context, early assistance and accurate diagnosis is essential, as it has a significant influence on the evolution of clinical cases, and it reduces the chances of death. For this reason, TECH has considered it necessary to develop a specialized program that gathers the latest information on the subject. In only 450 hours of the best multidisciplinary material, our students will be able to update on the epidemiology of chronic and respiratory diseases in a 100% online format.



### tech 06 | Introduction

It is certainly inevitable to think of COVID-19 when discussing viral respiratory diseases. The worldwide pandemic that unleashed the proliferation of SARS-CoV-2 from Wuhan to the most distant countries revealed the vulnerability of humans to the attack of unknown pathogens. The pathology mainly affects the respiratory system and causes everything from simple colds to fatal pneumonia. This type of disease is closely associated with chronic diseases, which are considered to be one of the main causes of death, since sufferers are at greater risk of infection and the consequences are more serious in them than in healthy people.

However, the combined advances in infectious diseases and medicine have made it possible to establish increasingly effective and specialized clinical guidelines, based on health safety and the design of exhaustive and efficient action protocols. All this is presented in this complete program that TECH and a team versed in this area have developed with the aim of serving as a guide for medical specialists during their update. This program will allow our students to delve into the latest developments in the epidemiology of infectious diseases, especially with regard to oncology or immunocompromised patients. It also focuses on the clinical management of chronic non-communicable diseases and the most frequent infections in this type of cases, with special emphasis on the advances in multi-resistance techniques and the most effective vaccines for each case.

All this in 450 hours of the best theoretical, practical and additional material, which has been condensed in a convenient and flexible 100% online format. Our students will have access to a state-of-the-art Virtual Campus where they will find all the content from any device with an Internet connection, which will allow them to take on the course load from wherever they want and without a pre-established schedule. Thus, they will benefit from an academic experience that not only adapts to the demands of clinical practice, but also to their needs in a guaranteed way.

This **Postgraduate Diploma in Chronic and Respiratory Diseases in Clinical Practice** contains the most complete and up-to-date scientific program on the market. The most important features include:

- Case studies presented by experts in infectious diseases in clinical practice
- 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



Through a 100% online academic experience you are guaranteed to update your knowledge on the epidemiology of infectious diseases"



A program that includes the latest developments in cancer management and immunosuppression when the patient has also contracted a viral infection"

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.

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 education programmed to learn in real situations.

This program is designed around Problem-Based Learning, whereby students must try to solve the different professional practice situations that arise during the academic year. To that end, they will be assisted by an innovative, interactive video system created by renowned and experienced experts.

You will have at your disposal a wide range of material to personalize your in-depth study of the different sections of the syllabus, updating your knowledge at your convenience.

Thanks to the comprehensive nature of the program's design, you will be able to delve into the latest clinical data on the most lethal respiratory infections in the world.







### tech 10 | Objectives



### **General objectives**

- Provide the most cutting-edge and specialized information on infectious diseases in chronic and respiratory pathologies in clinical practice
- Delve into the consequences of this type of diseases, especially in oncology and immunosuppressed patients, to update clinical practice according to the latest clinical advances to date



A program of the highest level adapted to the demands of modern medicine and specialized clinical care in the management of chronic patients or patients with respiratory pathologies caused by infections"





### Module 1. Epidemiology of Infectious Diseases

- Know the epidemiological, economic, social and political conditions of countries with major infectious diseases
- Identify the different taxonomies of infectious agents, as well as the properties of microorganisms
- Gain in-depth knowledge of chemical and physical agents in microorganisms
- Know the indications and interpretations of a microbiological study, understanding all the technical aspects

### Module 2. Cancer and Immunosuppression

- Identify the general structures of the immune system
- Establish the common responses of the immunological system when faced with viral and bacterial infections
- Explain the complex interrelationships between infections and different types of immunosuppression

#### Module 3. Chronic Non-Communicable Diseases and Infections

- Study the current pathophysiological elements between non-transmissible chronic diseases and infections
- Know the neurological, endocrine and immune interrelationships in the face of stress and infectious agents
- Identify the digestive diseases associated with infectious microorganisms and the function of this system in the body
- Gain in-depth knowledge on the infectious theory of rheumatic diseases

### Module 4. The Most Lethal Respiratory Infections

- Study the latest clinical, diagnostic and therapeutic elements of the most lethal respiratory infections in depth
- Know the mortal repercussions of bacterial pneumonia associated with health care and other factors
- Identify the clinical picture, pathobiology and diagnosis of tuberculosis
- Analyze the formation of Loeffler syndrome in its pulmonary phase and the clinical manifestations

#### Module 5. Multi-Resistance and Vaccines

- · Identify the acquired genetic mechanisms that lead to antimicrobial resistance
- Deepen understanding of the different infections that have developed resistance to antiviral drugs
- Know the general aspects of vaccination, as well as its immunological basis, its production process and the risk for people
- Establish the correct method for the use of vaccines





### tech 14 | Course Management

### Management



### Dr. Díaz Pollán, Beatriz

- Specialist in the area of Infectious Diseases at La Paz University Hospita
- Master's Degree in Infectious Diseases and Antimicrobial Treatment from CEU Cardenal Herrera University
- University Expert in community and nosocomial infections from the CEU Cardenal Herrera University
- University Expert in Microbiological Diagnosis, Antimicrobial Treatment and Research in Infectious Pathology from CEU Cardenal Herrera University
- University expert in chronic infectious pathologies and imported infections from CEU Cardenal Herrera University
- Degree in Medicine and Surgery from the Autonomous University of Madrid

#### **Professors**

#### Dr. Rico, Alicia

- Specialist in the Microbiology and Parasitology Department at La Paz University Hospital
- Assistant and co-founder of the Infectious Diseases and Clinical Microbiology Unit.
   La Paz University Hospital. Madrid
- Team Member of PROA (Programs of reinforcement, Orientation and Support)
- · Clinical teaching collaborator. Department of Medicine, UAM
- Member of the Infections and Policy Committee. La Paz Hopistal
- · Doctorate, Complutense University of Madrid
- Degree in Medicine from the Complutense University of Madrid

### Dr. Loeches Yagüe, María Belén

- Specialist in the area of Infectious Diseases at La Paz General University Hospital
- Doctorate in Medicine from the Autonomous University Madrid
- Degree in Medicine from the Complutense University of Madrid
- Master's Degree in Theoretical and Practical Learning in Infectious Diseases
- Specialised Training in Microbiology and Infectious Diseases
- Professor of Infectious Diseases, Infanta Sofía University Hospital, Madrid

### Dr. Ramos, Juan Carlos

- Doctor at La Paz University Hospital
- Doctorate in Medicine, University of Alcala
- Degree in Medicine and Surgery from the Complutense University of Madrid
- Master's Degree in Infectious Diseases in Intensive Care from the Fundación Universidad-Empresa Valencia
- Author of Several Scientific Publications

### Dr. Arribas López, José Ramón

- Department Head of the Infectious Diseases and Clinical Microbiology Unit at the Hospital Universitario La Paz
- Coordinator of the High-Level Isolation Unit at the Hospital La Paz Carlos III
- Member Interministerial Committee for the management of the Ebola crisis
- Head of the AIDS and Infectious Diseases research group at IdiPAZ
- Doctorate in Medicine from the Autonomous University Madrid
- Degree in Medicine and Surgery from the Complutense University of Madrid

#### Dr. Mora Rillo, Marta

- Specialist in the area of Infectious Diseases at La Paz University
- Clinical Teaching Collaborator in the Department of Medicine. Autonomous University of Madrid
- Doctorate in Medicine from the Autonomous University Madrid
- Degree in Medicine and Surgery from the University of Zaragoza
- Master's Degree in Infectious Diseases in Intensive Care by the University of Valencia
- Online Master in Infectious Diseases and antimicrobial treatment by CEU Cardenal Herrera University
- Master's Degree in Tropical and Health Medicine from the Autonomous University of Madrid
- Postgraduate Diploma in Emerging and High-Risk Virus Pathology, Autonomous University of Madrid
- Expert in Tropical Medicine from the Autonomous University Madrid





### tech 18 | Structure and Content

### Module 1. Epidemiology of Infectious Diseases

- 1.1. Epidemiological, Economic and Social Conditions by Continent that Favor the Emergence of Infectious Diseases
  - 1.1.1. Africa
  - 1.1.2. America
  - 1.1.3. Europe and Asia
- 1.2. New and Emerging Diseases by Continent
  - 1.2.1. Morbidity and Mortality from Infectious Diseases in Africa
  - 1.2.2. Morbidity and Mortality from Infectious Diseases in the Americas
  - 1.2.3. Morbidity and Mortality from Infectious Disease in Asia
  - 1.2.4. Morbidity and Mortality from Infectious Diseases in Europe
- 1.3. The Taxonomy of Infectious Agents
  - 1.3.1. Viruses
  - 1.3.2. Bacteria
  - 1.3.3. Fungi
  - 1.3.4. Parasites
- 1.4. Properties in Microorganisms that Cause Disease
  - 1.4.1. Pathogenic Mechanisms
  - 1.4.2. Adhesion and Multiplication Mechanisms
  - 1.4.3. Mechanisms that Enable Nutrient Acquisition from Hosts
  - 1.4.4. Mechanisms that Inhibit Phagocytic Processes
  - 1.4.5. Mechanisms that Circumvent Immune Responses
- 1.5. Microscopy and Staining
  - 1.5.1. Microscopes and Types of Microscopes
  - 1.5.2. Composite Stains
  - 1.5.3. Acid-Fast Microorganism Stains
  - 1.5.4. Stains for Cellular Structures
- 1.6. Microorganism Cultures and Growth
  - 1.6.1. General Culture Methods
  - 1.6.2. Specific Culture Methods
- 1.7. Effect of Chemical and Physical Agents on Microorganisms
  - 1.7.1. Sterilisation and Disinfection
  - 1.7.2. Disinfectants and Antiseptics Used in Practice
- 1.8. Molecular Biology and Its Relevance to Infectious Disease Specialists
  - 1.8.1. Bacterial Genetics
  - 1.8.2. Polymerase Chain Reaction Tests
- 1.9. Indication and Interpretation of Microbiological Studies

### Module 2. Cancer and Immunosuppression

- 2.1. The Innate and Adaptive Immune Response
  - 2.1.1. Cells and Cytokines in Response to Infectious Agents
  - 2.1.2. Characteristics of the Innate Immune Response
- 2.2. Immunosuppression in Different Conditions in Patients with Sepsis
  - 2.2.1. The Role of Cytotoxics in Immunosuppression
  - 2.2.2. The Role of Cytotoxics in Immunosuppression
  - 2.2.3. Infection in Transplant Patients
- 2.3. The Oncohematological Patient with Sepsis
  - 2.3.1. Medullary Aplasia
  - 2.3.2. Neutropenia
  - 2.3.3. Infections in Cancer Patients
- 2.4. Sepsis in Diabetic Patients
  - 2.4.1. The Immune System in Diabetes Mellitus
  - 2.4.2. Main Infections in Diabetic Patients
- 2.5. Comprehensive Approach to Immunocompromised Patients with Sepsis
  - 2.5.1. Diagnostic Considerations
  - 2.5.2. Therapeutic Measures
- 2.6. The Link between Cancer and Microorganisms
  - 2.6.1. Oncogenesis and Infection
  - 2.6.2. Virus and Cancer
    - 2.6.2.1. Epstein-Barr Virus
    - 2.6.2.2. Hepatitis B and C Viruses
    - 2.6.2.3. Human Immunodeficiency Virus
    - 2.6.2.4. T-Cell Lymphoma/Leukaemia Viruses
    - 2.6.2.5. Kaposi's Sarcoma-Associated Herpesvirus
- 2.7. Bacterias and Cancer
  - 2.7.1. Helicobacter Pylori
- 2.8. Parasites and Cancer
  - 2.8.1. Schistosoma Haematobium
  - 2.8.2. Opisthorchis Viverrini
- 2.9. Bacteria Allies against Cancer



### Structure and Content | 19 tech

### Module 3. Chronic Non-Communicable Diseases and Infections

- 3.1. Infections and Chronic Inflammatory Response
  - 3.1.1. Immune System Cells in Chronic Inflammatory Response to Infections
  - 3.1.2. The Granulomatous Response and Delayed-type Hypersensitivity
  - 3.1.3. The Role of Chemical Mediators in Chronic Inflammatory Response
- 3.2. Stress, Immunity and Infectious Agents
  - 3.2.1. Neurological, Endocrine and Immune Interrelationships
  - 3.2.2. Stress and Immune Response
  - 3.2.3. Chronic Fatigue Syndrome and Infections
- 3.3. Atherosclerosis, Cardiovascular Disease and the Role of Infectious Agents
  - 3.3.1. The Role of Infectious Agents in Atherosclerosis
  - 3.3.2. Cardiovascular Disease Mortality and Infectious Agents
  - 3.3.3. Cardiovascular Mortality in Pneumonia Patients
- 3.4. Digestive Diseases Associated with Infectious Microorganisms
  - 3.4.1. Gut Flora and Important Functions
  - 3.4.2. Gastroduodenal Peptic and Helicobacter Pylori Disease
  - 3.4.3. Inflammatory Bowel Disease and Infections
  - 3.4.4. Whipple's Disease
- 3.5. Neurological Diseases and Infections
  - 3.5.1. Dementia and Infections
  - 3.5.2. Multiple Sclerosis and its Relationship to Certain Infectious Agents
  - 3.5.3. Guillain-Barré Syndrome, Immunity and Viral Infections
  - 3.5.4. Parkinson's Disease and Infections
- 3.6. Endocrinopathies and Infections
  - 3.6.1. Mellitus Diabetes and Infections
  - 3.6.2. Chronic Thyroiditis and Infections
- 3.7. The Infectious Theory of Rheumatic Diseases
  - 3.7.1. Rheumatoid Arthritis
  - 3.7.2. Systemic Lupus Erythematosus
  - 3.7.3. Seronegative Spondyloarthropathies
  - 3.7.4. Wegener's Granulomatosis
  - 3.7.5. Polymyalgia Rheumatica

### tech 20 | Structure and Content

### Module 4. The Most Lethal Respiratory Infections

- 4.1. Immunology and Defence Mechanisms of the Respiratory System
- 4.2. Influenza and Other Lethal Viral Infections
  - 4.2.1. Influenza Epidemics
  - 4.2.2. H1N1 Influenza
  - 4.2.3. Vaccine Against Influenza and the Prevention of Mortality
- 4.3. Bacterial Pneumonia: The Captain of the Armies of Death
  - 4.3.1. Community-Acquired Pneumonia (CAP)
  - 4.3.2. Intrahospital Pneumonia
  - 4.3.3. Pneumonia Associated with Healthcare
- 4.4. Tuberculosis
  - 4.4.1. Epidemiology
  - 4.4.2. Pathobiology
  - 4.4.3. Classification
  - 4.4.4. Clinical Picture
  - 4.4.5. Diagnosis
  - 4.4.6. Treatment
- 4.5. Loeffler's Syndrome and Eosinophilic Syndromes
  - 4.5.1. Pulmonary Phase of Parasites
  - 4.5.2. Clinical and Radiological Manifestations
  - 4.5.3. Other Eosinophilic Pneumonias
- 4.6. Antimicrobials and the Respiratory System
  - 4.6.1. Antimicrobials Effective in the Respiratory System
  - 4.6.2. The Immunomodulatory Role of Macrolides in Pneumonia



### Structure and Content | 21 tech

#### Module 5. Multi-Resistance and Vaccines

- 5.1. The Silent Epidemic of Antibiotic Resistance
  - 5.1.1. Globalization and Resistance
  - 5.1.2. Change from Susceptible to Resistant of the Microorganisms
- 5.2. The Main Genetic Mechanisms of Antimicrobial Resistance
  - 5.2.1. Describe the Main Mechanisms of Antimicrobial Resistance
  - 5.2.2. Selective Antimicrobial Pressure on Antimicrobial Resistance
- 5.3. Superbugs
  - 5.3.1. Pneumococcus Resistant to Penicillin and Macrolides
  - 5.3.2. Multidrug-Resistant Staphylococci
  - 5.3.3. Resistant Infections in Intensive Care Units (ICUs)
  - 5.3.4. Resistant Urinary Tract Infections
  - 5.3.5. Other Multi-Resistant Microorganisms
- 5.4. Resistant Viruses
  - 541 HIV
  - 5.4.2. Influenza
  - 5.4.3. Hepatitis Viruses
- 5.5. Multidrug-Resistant Malaria
  - 5.5.1. Chloroguine Resistance
  - 5.5.2. Resistance to Other Antimalarials
- 5.6. The Main Genetic Studies of Antimicrobial Resistance
  - 5.6.1. Interpretation of Resistance Studies
- 5.7. Global Strategies for Reducing Antimicrobial Resistance
  - 5.7.1. The Control of Prescribing Antibiotics
  - 5.7.2. Microbiological Mapping and Clinical Practice Guidelines
- 5.8 Overview of Vaccines
  - 5.8.1. Immunological Basis of Vaccination
  - 5.8.2. The Process of Vaccination Production
  - 5.8.3. Quality Control of Vaccines
  - 5.8.4. Vaccine Safety and Major Adverse Events
  - 5.8.5. Clinical and Epidemiological Studies for Vaccine Approval
- 5.9. The Use of Vaccines
  - 5.9.1. Vaccine-Preventable Diseases and Vaccination Programmes
  - 5.9.2. Global Experiences of the Effectiveness of Vaccination Programmes
  - 5.9.3 Vaccine Candidates for New Diseases



Cardiovascular, neurological, endocrinopathic diseases?
With this program, you will be able to implement the best and most innovative strategies in your practice to fight against infections"





### tech 24 | Methodology

#### 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. Specialists 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 in the physician's professional practice.



Did you know that this method was developed in 1912, at Harvard, for law students? The case method consisted of presenting students with real-life, complex situations for them to make decisions and justify their decisions on how to solve them. In 1924, Harvard adopted it as a standard teaching method"

### The effectiveness of the method is justified by four fundamental achievements:

- Students who follow this method not only achieve the assimilation of concepts, but also a development of their mental capacity, through exercises that evaluate real situations and the application of 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.

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.

Professionals will learn through real cases and by resolving complex situations in simulated learning environments. These simulations are developed using state-of-the-art software to facilitate immersive learning.



### Methodology | 27 tech

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 250,000 physicians have been trained with unprecedented success in all clinical specialties regardless of surgical load. 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 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.

### tech 28 | Methodology

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.



### **Surgical Techniques and Procedures on Video**

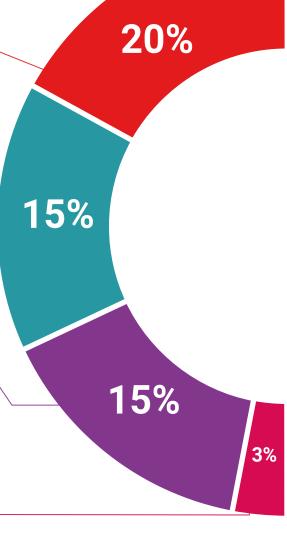
TECH introduces students to the latest techniques, the latest educational advances and to the forefront of current medical techniques. All of this in direct contact with students and explained in detail so as to aid their assimilation and understanding. And best of all, you can watch the videos as many 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 on the usefulness of learning by observing experts.

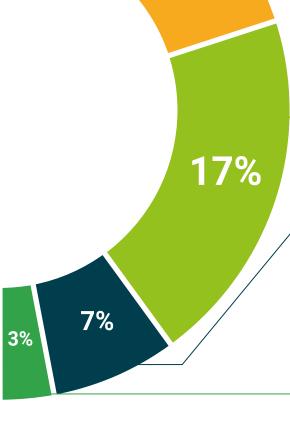
The system known as Learning from an Expert strengthens knowledge and memory, and generates confidence in future difficult decisions.



#### **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.









### tech 32 | Certificate

This **Postgraduate Diploma in Chronic and Respiratory Diseases in Clinical Practice** 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 diploma 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 Chronic and Respiratory Diseases in Clinical Practice Official No of hours: 450 h.



<sup>\*</sup>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.



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Course Modality: Online

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