

# Postgraduate Diploma Hospital Clinical Pharmacology





## Postgraduate Diploma Hospital Clinical Pharmacology

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

Website: [www.techtute.com/in/pharmacy/postgraduate-diploma/postgraduate-diploma-hospital-clinical-pharmacology](http://www.techtute.com/in/pharmacy/postgraduate-diploma/postgraduate-diploma-hospital-clinical-pharmacology)

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# 01

# Introduction

The COVID-19 pandemic highlighted the need to advance in the development of more effective pharmacological therapies against respiratory infections. In this critical health period, more and more updated protocols emerged, which, in turn, resulted in greater demands on Hospital Clinical Pharmacy services. For this reason, TECH has set out to offer its students an exhaustive training with this intensive program. The university program covers the most recent medications for the management of problems such as Asthma or COPD, as well as those necessary to treat pathologies of the Cardiovascular and Gastrointestinal System. The syllabus is also distinguished by the deepening of cutting-edge treatments for Oncohematological Emergencies. This from the disruptive *Relearning* methodology and a teaching staff of maximum prestige.





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*In this 100% online Postgraduate Diploma you will have updated contents and first level didactic tools that will allow you to fully manage the Hospital Clinical Pharmacology”*

According to official figures and assessments of the World Health Organization, many deaths in the hospital environment are linked to inadequate selection of therapies and drugs offered to patients. This problem is closely linked to the fact that many pharmacy professionals are not up to date with the main innovations in this field and are not familiar with the most advanced products and intervention protocols available to them. This prevents them from fully assisting medical personnel in the care of gastrointestinal, cardiac or respiratory pathologies.

TECH, based on this incidence, has designed a rigorous program that will allow students to analyze different drugs of last generation that are used today for the approach of unstable angina, heart failure or the management of tachycardia. Also, the main bronchodilators used to treat Obstructive Pulmonary Disease or the antibiotics and antivirals that have revolutionized the management of respiratory infections such as COVID-19 will be discussed.

On the other hand, the agenda covers the most efficient prokinetics and antiemetics to carry out nutritional therapeutic interventions, among other pharmacological management related to the Gastrointestinal System. Finally, this program emphasizes on the development, progression and complications resulting from Oncohematological Diseases and which are the most advanced drugs that allow to offer a better quality of life to people suffering from them.

All the contents of this program are integrated in a 100% online platform and are complemented with high quality multimedia resources, such as videos, infographics or interactive summaries. In addition, the *Relearning* methodology, exclusive to TECH, will enable each student to strengthen their practical skills in a more expeditious and flexible way. At the same time, each participant will have the opportunity to adapt this update to the schedules of their convenience since the study times are not hermetic and do not require unnecessary travel to an on-site academic center.

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

- ♦ The development of practical cases presented by experts in Pharmacy, Hospital Management, among others
- ♦ 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



*Acquire a high level of specialization through a personalized academic model, which allows you to organize your studies according to your schedule and individual needs"*

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*Throughout this academic itinerary you will be able to address prokinetics and antiemetics implemented in Hospital Clinical Pharmacology to develop efficient nutritional therapies"*

The program's teaching staff includes professionals from sector who contribute their work experience to this educational program, as well as renowned specialists from leading societies and prestigious universities.

Its multimedia content, developed with the latest educational technology, will provide the professionals with situated and contextual learning, i.e., a simulated environment that will provide an immersive education programmed to learn in real situations.

The design of this program focuses on Problem-Based Learning, by means of which the professionals must try to solve the different professional practice situations that are presented throughout the academic course. For this purpose, the students will be assisted by an innovative interactive video system created by renowned experts.

*In this program you will analyze the most advanced antihypertensive and antiarrhythmic drugs to treat conditions such as deep vein thrombosis.*

*Through this university program you will delve into the latest generation drugs that facilitate the care of oncohematologic emergencies and allow solving their various complications.*



# 02 Objectives

This Postgraduate Diploma aims to provide professionals in the field of Pharmacy with a detailed update on the most modern drugs and care protocols for patient care in the hospital setting. The program provides comprehensive content on cardiovascular, respiratory, gastrointestinal and oncohematological pharmacology. Thus, participants will be able to develop specific skills on the rational use of drugs in medical emergency units and contribute to improve the quality of care.







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*TECH offers you the best combination of advanced content and the most qualified faculty to update the knowledge and skills you need to achieve your academic goals with excellence and precision”*



## General Objectives

- ◆ Identify management of a wide variety of clinical situations, using available patient-specific information (e.g., age-related, risk factors, relevant acuity indices, prehospital providers)
- ◆ Develop therapeutic and monitoring plans based on medication-related problems, patient- and disease-specific information, and laboratory data
- ◆ Summarize strategies for the procurement, preparation, and administration of time-sensitive therapies
- ◆ Evaluate the applicability and limitations of published data and reports to patient care
- ◆ Modify the treatment plan based on monitoring the patient's response to initial therapy



*This Postgraduate Diploma guarantees you a unique academic experience by allowing you to choose where and how to go deeper into its contents, with the help of any device connected to the Internet"*





## Specific Objectives

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### Module 1. Pharmacology of the Cardiovascular System

- ◆ Delve into incidence, prehospital management, typical symptoms, rapid assessment and diagnosis, time-dependent pharmacology Acute Coronary Syndrome (ACS): i
- ◆ Evaluate, diagnose, delve into the initial management, time-dependent therapies for Heart Failure (HF)
- ◆ Delve into arrhythmias, initial management of tachycardia, stable and unstable tachycardia, cardiorespiratory arrest

### Module 2. Pharmacology of the Respiratory System

- ◆ Deepen in asthma its definition, prevalence, acute exacerbation, imaging and laboratory tests, emergency management and pharmacology
- ◆ Define COPD, its prevalence, acute exacerbation, imaging tests and pharmacology
- ◆ Delve into Pneumonia, its definition and incidence, types of Pneumonia, pharmacology
- ◆ Define anaphylaxis, its incidence, types, diagnosis and pharmacology
- ◆ Investigate Steven-Johnson Syndrome (SJS) and Toxic Epidermal Necrolysis (TEN): definitions, etiology, risk factors, clinical presentation, complications, supportive therapy
- ◆ Deepen in the definition, indication, pathophysiology, pharmacology of muscle inducing and paralyzing agents of the Rapid Induction and Intubation Sequence (RIIS)
- ◆ Delve into sedoanalgesia, agitation and delirium, pharmacology of sedative agents in post-intubation sedoanalgesia

### Module 3. Pharmacology of the Gastrointestinal System

- ◆ Update knowledge on chronic liver disease, its definition and causes of cirrhosis, diagnosis and initial evaluation, pathophysiology, severity, pharmacology
- ◆ Deepen in upper gastrointestinal bleeding (UGH)
- ◆ Be aware of spontaneous bacterial peritonitis (SBP), its pathophysiology, incidence and management
- ◆ Deepen in the hydroelectrolytic alterations and hyperelectrolytemias, its physiopathology, clinical presentation and treatment
- ◆ Investigate the pathophysiology, risk factors, diagnosis, severity and pharmacological treatment of Clostridium Difficile Infection (CDI)
- ◆ Delve into the pathophysiology, microbiology, diagnosis, risk stratification, and treatment of complicated intra-abdominal infection (Clabc)
- ◆ Be updated on the classification, symptoms, precipitating factors, diagnosis, treatment of Pancreatitis

### Module 4. Pharmacology of Oncohematologic Emergencies

- ◆ Delve into the incidence, diagnosis, outpatient treatment and pharmacotherapeutic arsenal against venous thromboembolism in oncohematological patients
- ◆ Deepen in the pathophysiology, risk factors, clinical presentation, hydroelectrolytic alterations, prevention and treatment of the Tumor Lysis Syndrome
- ◆ Determine the pathophysiology, risk factors, clinical presentation, hydroelectrolytic alterations, prevention and treatment of tumor hypercalcemia
- ◆ Address pain management, multimodal pharmacotherapy and acute treatment of sickle cell disease

03

# Course Management

The faculty of this TECH Technological University program is composed of professionals who accumulate dissimilar experiences in the development of an efficient Hospital Clinical Pharmacology. Their competencies have been acquired in demanding therapeutic units and emergency departments of different renowned health facilities. These professionals are also proficient in logistics, procurement systems and drug consumption recording. All of these theoretical and practical skills will be transmitted to the students through the most innovative methodology and in a 100% online mode of study.



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*This teaching staff has made a careful selection of the subjects and complementary academic resources provided in the program"*

## Management



### Mr. Ramo Rodríguez, Javier

- ◆ Pharmacist at Hospital Corporación Sanitaria Parc Taulí, Sabadell, Spain
- ◆ Coordinating member of the working group of pharmacists specializing in the Emergency Department (RedFaster)
- ◆ Pharmacist specializing in Hospital Pharmacy at Hospital Mútua de Terrassa
- ◆ Pharmacist specializing in Hospital Pharmacy at Consorci Sanitari Integral
- ◆ Resident Pharmacist at Servicio Canario de la Salud (Canary Health Service)
- ◆ Assistant Pharmacist in Pharmacy María Concepción Gutiérrez
- ◆ Assistant Pharmacist in Pharmacy Marina López González
- ◆ Master in Pharmacotherapeutic Follow-up of HIV/AIDS patients by the University of Granada

## Professors

### D. De Gorostiza Frías, Carlos

- ◆ Specialist Pharmacist in Quirónsalud's Central Purchasing Office
- ◆ Resident in Hospital Pharmacy at the Fundación Jiménez Díaz Hospital
- ◆ Clinical researcher for the University of Granada
- ◆ Supervised stay at Centro Tecnológico Nacional de la Conserva y Alimentación (National Technological Center of Preserves and Food)
- ◆ Supervised stay at St Georges Hospital in London
- ◆ Double Degree in Pharmacy and Human Nutrition and Dietetics

### Dr. Fendián, Ángel Marcos

- ◆ Assistant Pharmacist at Hospital de la Santa Creu i Sant Joan de Déu
- ◆ Hospital Pharmacist in Intensive Care Unit at Hospital Clinic of Barcelona
- ◆ Assistant pharmacist at Hospital Universitari Joan XXIII
- ◆ Assistant pharmacist at Hospital Pius de Valls
- ◆ PhD in Pharmacy from the Université of Montpellier
- ◆ Master's Degree in Pharmaceutical Oncology by the University of Valencia



# 04

# Structure and Content

In 4 academic modules, this TECH Postgraduate Diploma covers different areas of Hospital Clinical Pharmacology. Firstly, it delves into the most cutting-edge drugs and therapies, such as the latest generation of antihypertensives for the management of cardiovascular pathologies. In turn, it delves into the most efficient drugs for the management of respiratory problems such as asthmatic exacerbation and COPD, as well as different gastrointestinal pathologies. Lastly, the students will deal with the most efficient pharmaceutical products and methods to cover oncohematological emergencies such as Tumor Lysis Syndrome. In addition, the study of all these contents will take place 100% online, from the best platform, and with the guidance of a prestigious teaching staff.







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*Use the Relearning methodology to master the practical skills offered by this TECH program in the fastest and most flexible way”*

## Module 1. Pharmacology of the Cardiovascular System

- 1.1. Acute Coronary Syndrome (ACS)
  - 1.1.1. ST NSTEMI/ACS Segment-Elevation ACS
  - 1.1.2. Non NSTEMI/ACS ST-Segment-Elevation in ACS
  - 1.1.3. Unstable Angina
- 1.2. Heart Failure
  - 1.2.1. Acute exacerbation of HF
  - 1.2.2. Moderate acute HF with water overload
  - 1.2.3. Acute hypertensive HF: acute pulmonary edema (PEA)
  - 1.2.4. Acute hypotensive HF: Cardiogenic Shock
  - 1.2.5. HF with increased systolic volume
  - 1.2.6. Acute HF and atrial fibrillation
  - 1.2.7. Acute HF and renal injury
  - 1.2.8. Hyperkalemia in acute HF
  - 1.2.9. HF of any type
- 1.3. Cardiac Arrhythmias
  - 1.3.1. Initial management of the patient with tachycardia
  - 1.3.2. Unstable tachycardia with a pulse
  - 1.3.3. Stable tachycardia
  - 1.3.4. Cardio-respiratory arrest (CRA)
- 1.4. Antihypertensives
  - 1.4.1. Angiotensin-converting enzyme inhibitors (ACEI)
  - 1.4.2. Angiotensin receptor blockers (ARBs)
  - 1.4.3. Diuretics
  - 1.4.4. Beta-blockers
- 1.5. Antiarrhythmics
  - 1.5.1. Class I
  - 1.5.2. Class II
  - 1.5.3. Class III
  - 1.5.4. Class IV





- 1.6. Drugs for the treatment of coronary heart disease
  - 1.6.1. Platelet Aggregation Inhibitors
  - 1.6.2. Beta-Blockers
  - 1.6.3. Nitrates
  - 1.6.4. Angiotensin-converting enzyme inhibitors (ACEI)
- 1.7. Anticoagulants
  - 1.7.1. Oral anticoagulants
  - 1.7.2. Vitamin K Antagonists
  - 1.7.3. Direct thrombin inhibitors
  - 1.7.4. Parenteral anticoagulants
- 1.8. Drugs in the treatment of deep vein thrombosis and pulmonary embolism
  - 1.8.1. Pathophysiology of deep vein thrombosis
  - 1.8.2. Pharmacology of anticoagulants used in the treatment of DVT and PE
  - 1.8.3. Thrombolytic drugs
  - 1.8.4. Anticoagulant therapy in the acute and chronic management of DVT and PE
- 1.9. Drugs in the Treatment of Angina Pectoris
  - 1.9.1. Pathophysiology of angina pectoris
  - 1.9.2. Fundamentals on Cardiovascular Pharmacology
  - 1.9.3. Classification of drugs for the treatment of Angina Pectoris
  - 1.9.4. Use of beta-blockers in the management of Angina Pectoris: Indications and Mechanisms of Action
- 1.10. Drugs in the Treatment of Pulmonary Hypertension
  - 1.10.1. Pathophysiology of Pulmonary Hypertension
  - 1.10.2. Fundamentals on Cardiovascular Pharmacology
  - 1.10.3. Pharmacology of PDE5 inhibitors in the treatment of Pulmonary Hypertension
  - 1.10.4. Pharmacology of soluble guanylate cyclase stimulators in the treatment of pulmonary hypertension

## Module 2. Pharmacology of the Respiratory System

- 2.1. Asthmatic exacerbation
  - 2.1.1. Underlying mechanisms
  - 2.1.2. Emerging therapies
  - 2.1.3. Risk Factors
  - 2.1.4. Prevention strategies
- 2.2. Acute exacerbation of Chronic Obstructive Pulmonary Disease (COPD)
  - 2.2.1. Antibiotics
  - 2.2.2. Medical treatment
  - 2.2.3. Oxygen Therapy
  - 2.2.4. Prevention strategies
- 2.3. Allergic Reaction
  - 2.3.1. Classification of allergies
  - 2.3.2. Types of allergy
  - 2.3.3. Diagnosis
  - 2.3.4. Immunotherapy
- 2.4. Anaphylaxis
  - 2.4.1. Clinical diagnosis
  - 2.4.2. Emergency Treatment
  - 2.4.3. Idiopathic Anaphylaxis
  - 2.4.4. Anaphylaxis in pediatrics
- 2.5. Steven-Johnson Syndrome (SJS) and Toxic Epidermal Necrolysis (TEN)
  - 2.5.1. Risk factors and triggers for SJS and TEN
  - 2.5.2. Clinical and differential diagnosis of JSS and TEN
  - 2.5.3. Emergency management and treatment of JSS and NETs
  - 2.5.4. Role of drugs and infectious agents in the development of JSS and NET
- 2.6. Rapid Induction and Intubation Sequence (SIIR)
  - 2.6.1. Indications and contraindications for SIIR
  - 2.6.2. Complications and risks associated with SIIR and its management
  - 2.6.3. Techniques and approaches for rapid and safe intubation in emergency situations
  - 2.6.4. Monitoring and evaluation during SIIR
- 2.7. Post-intubation sedoanalgesia
  - 2.7.1. Pharmacology of sedative and analgesic agents
  - 2.7.2. Assessment and monitoring of the level of sedation
  - 2.7.3. Strategies for pain control in postintubation patients
  - 2.7.4. Differences in sedation and analgesia according to the type of unit
- 2.8. Pharmacology of Bronchodilators
  - 2.8.1. Action Mechanisms of Bronchodilators
  - 2.8.2. Classification of bronchodilators according to their duration of action and potency
  - 2.8.3. Short-acting versus long-acting bronchodilators
  - 2.8.4. Adverse effects and safety of bronchodilators
- 2.9. Principles of pharmacokinetics and pharmacodynamics as applied to respiratory drugs
  - 2.9.1. Principles of absorption, distribution, metabolism and excretion of respiratory drugs
  - 2.9.2. Influence of age, gender and pathological conditions
  - 2.9.3. Evaluation of the bioavailability of respiratory drugs
  - 2.9.4. Optimization of respiratory drug formulations for better absorption and bioavailability
- 2.10. Pharmacology of antibiotics and antivirals in respiratory infections
  - 2.10.1. Classification of antibiotics and antivirals used in respiratory infections
  - 2.10.2. Mechanisms of Action of Antibiotic and Antivirals
  - 2.10.3. Resistance to Antibiotics and Antiviral
  - 2.10.4. Rational Use of Antibiotics and Antiviral

**Module 3. Pharmacology of the Gastrointestinal System**

- 3.1. Chronic Hepatic Disease
  - 3.1.1. Diagnosis and classification of chronic liver diseases
  - 3.1.2. Biomarkers and liver function tests in diagnosis and follow-up
  - 3.1.3. Strategies for management and prevention of disease progression
  - 3.1.4. Pharmacological treatment of chronic liver disease
- 3.2. Upper gastrointestinal bleeding (UGH)
  - 3.2.1. Epidemiology and risk factors associated to Upper Gastrointestinal Bleeding
  - 3.2.2. Classification and Etiology of Upper Gastrointestinal Bleeding
  - 3.2.3. Diagnosis and early detection methods of HDA
  - 3.2.4. Pharmacological Treatment of HDA
- 3.3. Spontaneous Bacterial Peritonitis (SBP)
  - 3.3.1. Anatomy and physiology of the peritoneum and its relationship with PBE
  - 3.3.2. Clinical diagnosis and methods of detection of spontaneous bacterial peritonitis
  - 3.3.3. Evaluation and classification of patients with SBP
  - 3.3.4. Pharmacological treatment of spontaneous bacterial peritonitis
- 3.4. Hydroelectrolytic Alterations
  - 3.4.1. Sodium
  - 3.4.2. Chlorine
  - 3.4.3. Potassium
  - 3.4.4. Phosphorus
- 3.5. Clostridium difficile infection (CDI)
  - 3.5.1. Epidemiology and risk factors associated to CDI
  - 3.5.2. CDI Diagnosis
  - 3.5.3. Clinical evaluation of the patient with Clostridium difficile infection
  - 3.5.4. Pharmacological Treatment of CDI
- 3.6. Complicated intra-abdominal infection (CAIbc)
  - 3.6.1. Epidemiology and risk factors associated to complicated intra-abdominal infection
  - 3.6.2. Etiology and pathogenesis of cCBI
  - 3.6.3. Clinical evaluation of the patient with cBAI
  - 3.6.4. Pharmacological treatment of complicated intra-abdominal infection
- 3.7. Pancreatitis
  - 3.7.1. Epidemiology and risk factors associated to Pancreatitis
  - 3.7.2. Etiology and Classification of Pancreatitis
  - 3.7.3. Clinical diagnosis and methods of detection of Pancreatitis
  - 3.7.4. Pharmacological treatment of acute and chronic pancreatitis
- 3.8. Irritable Bowel Syndrome
  - 3.8.1. Anatomy and physiology of the gastrointestinal system related to irritable bowel syndrome
  - 3.8.2. Etiology and pathogenesis of irritable bowel syndrome
  - 3.8.3. Classification and subtypes of IBS
  - 3.8.4. Medical treatment of irritable bowel syndrome
- 3.9. Prokinetics and antiemetics
  - 3.9.1. Anatomy and physiology of the gastrointestinal system and the control of motility
  - 3.9.2. Classification and mechanisms of action of prokinetics and antiemetics
  - 3.9.3. Indications and contraindications for the use of prokinetics and antiemetics
  - 3.9.4. Pharmacological treatment of nausea and vomiting induced by opioids and other drugs
- 3.10. Pharmacology of drugs used in nutritional therapy
  - 3.10.1. Classification and Types of nutritional therapy
  - 3.10.2. Administration of drugs and enteral nutrition: interactions and special considerations
  - 3.10.3. Medications used for the management of malnutrition and nutritional support in critically ill patients
  - 3.10.4. Antibiotics and antifungals in enteral and parenteral nutrition patients

## Module 4. Pharmacology of Oncohematologic Emergencies

- 4.1. Venous thromboembolism in oncohematological patients
  - 4.1.1. Epidemiology and risk factors of VTE in oncohematologic patients
  - 4.1.2. Diagnosis and classification of venous thromboembolism in patients with hematologic cancers
  - 4.1.3. Pharmacology of anticoagulants used in the treatment and prevention of VTE in oncohematological patients
  - 4.1.4. Use of thrombolytics in severe cases of VTE in oncohematologic patients
- 4.2. Tumor Lysis Syndrome
  - 4.2.1. Classification and diagnosis of Tumor Lysis Syndrome
  - 4.2.2. Use of allopurinol and rasburicase in the prevention and management of hyperuricemia in SLT
  - 4.2.3. Treatment of electrolyte disturbances in the Tumor Lysis Syndrome
  - 4.2.4. Pharmacologic management of hyperkalemia in patients with SLT
- 4.3. Tumor hypercalcemia
  - 4.3.1. Mechanisms of action of tumors to provoke hypercalcemia
  - 4.3.2. Types of tumors associated with Hypercalcemia
  - 4.3.3. Diagnosis and classification of tumor hypercalcemia
  - 4.3.4. Risk assessment and prognostic factors in patients with tumor hypercalcemia
- 4.4. Febrile Neutropenia
  - 4.4.1. Mechanisms of action of tumors to provoke hypercalcemia
  - 4.4.2. Types of tumors associated with Hypercalcemia
  - 4.4.3. Diagnosis and classification of tumor hypercalcemia
  - 4.4.4. Risk assessment and prognostic factors in patients with tumor hypercalcemia
- 4.5. Sickle cell disease
  - 4.5.1. Genetics and inheritance of sickle cell disease
  - 4.5.2. Diagnosis and Classification of sickle cell disease
  - 4.5.3. Pharmacology of drugs used in the treatment and management of SCD
  - 4.5.4. Use of hydroxyurea in the treatment and prevention of vasoocclusive crises
- 4.6. Mechanisms of development and progression of oncohematological diseases
  - 4.6.1. Genetics and molecular biology of normal and cancerous hematopoietic cells
  - 4.6.2. Mechanisms of malignant transformation of hematopoietic cells
  - 4.6.3. Role of genetic mutations in hematologic oncogenesis
  - 4.6.4. Tumor microenvironment and its influence on the progression of oncohematological diseases
- 4.7. Pharmacology of drugs used in for Oncohematological Emergencies
  - 4.7.1. Pharmacology of drugs used in stabilization and life support in oncohematological patients
  - 4.7.2. Pharmacological management of acute hematological complications, such as severe anemia and thrombocytopenia
  - 4.7.3. Pharmacotherapy in cases of febrile neutropenia in patients with blood cancers
  - 4.7.4. Use of drugs for the control of acute pain in oncohematological patients
- 4.8. Treatment of febrile neutropenia
  - 4.8.1. Etiology and risk factors of febrile neutropenia in oncologic and hematologic patients
  - 4.8.2. Diagnosis and classification of Febrile Neutropenia
  - 4.8.3. Pharmacology of antibiotics used in the empirical treatment of febrile neutropenia
  - 4.8.4. Use of colony-stimulating factors (G-CSF) in the management of febrile neutropenia
- 4.9. Treatment of tumor lysis syndrome
  - 4.9.1. Risk factors and prediction of the risk of developing tumor lysis syndrome
  - 4.9.2. Diagnosis and classification of Tumor Lysis Syndrome
  - 4.9.3. Pharmacology of drugs used in the prophylaxis and treatment of Tumor Lysis Syndrome
  - 4.9.4. Use of allopurinol and rasburicase in the prevention and management of hyperuricemia in SLT
- 4.10. Leukemia and Lymphoma Emergencies
  - 4.10.1. Oncohematologic Emergencies
  - 4.10.2. Acute Leukemia Emergencies
  - 4.10.3. Pharmacology of induction and consolidation treatments in acute leukemias
  - 4.10.4. Treatment of infectious complications in patients with leukemias and lymphomas



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*With this 100% online Postgraduate Certificate, you will be able to acquire competencies in Hospital Clinical Pharmacology with the greatest comfort, without unnecessary trips to any on-site study center”*

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 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

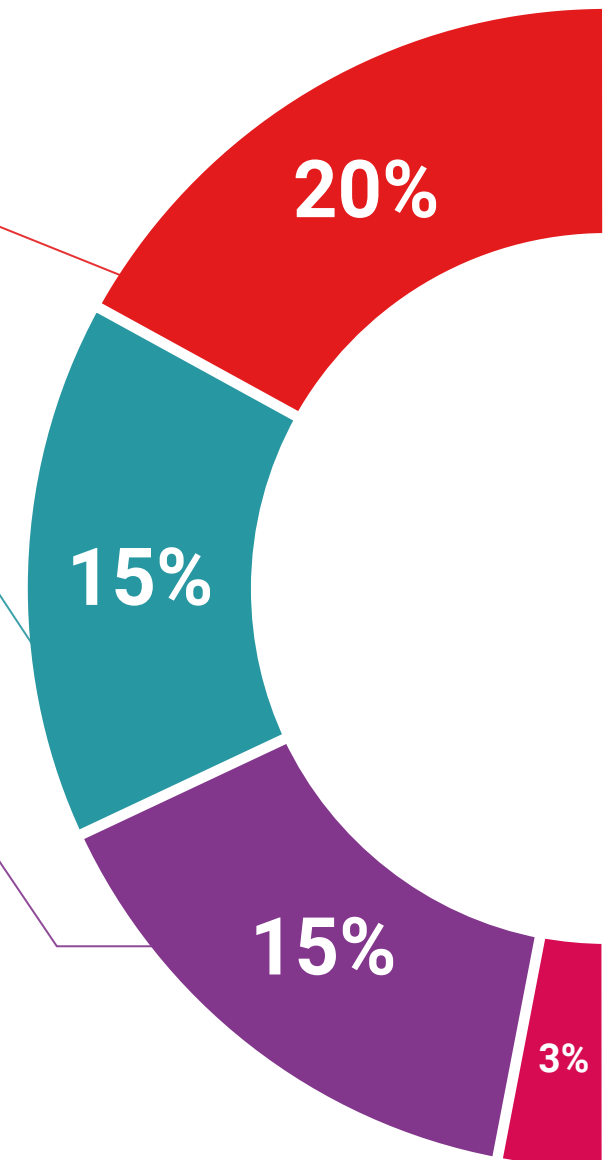
The TECH team presents the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

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.



06

# Certificate

The Postgraduate Diploma in Hospital Clinical Pharmacology guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Diploma issued by TECH Technological University.







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

This **Postgraduate Diploma in Hospital Clinical Pharmacology** 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 Hospital Clinical Pharmacology**

Official N° of Hours: **600 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.



## Postgraduate Diploma Hospital Clinical Pharmacology

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

# Postgraduate Diploma

## Hospital Clinical Pharmacology

