Professional Master's Degree

Hospital Pharmacy

tech technological university

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Professional Master's Degree
Hospital Pharmacy

- Modality: **online**
- Duration: **12 months**
- Certificate: **TECH Technological University**
- Dedication: **16h/week**
- Schedule: **at your own pace**
- Exams: **online**

Website: **www.techtitute.com/pk/pharmacy/professional-master-degree/master-hospital-pharmacy**

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01

Introduction

The pharmacological management of pathologies such as myasthenia gravis has potentially evolved thanks to the impact of new treatments such as immunomodulatory therapies. This type of strategy, to reduce the immune system response to this severe neuromuscular disease, requires the combination of drugs such as corticosteroids, intravenous immunoglobulins or monoclonal antibodies. Professionals who assist these pathologies in the hospital setting must remain up to date to get the most out of the drugs. For this reason, this 100% online program brings together the latest resources and protocols that a hospital pharmacist must master and implement for this disease and other complex diseases such as infections or polytrauma. All this from the innovative Relearning methodology and with the accompaniment of multimedia materials such as videos and interactive summaries.

Thanks to this Professional Master's Degree and its 100% online methodology, you will deepen in the design of therapeutic plans in the hospital context involving the most advanced pharmacological products"

Antibiotic resistance is one of the main concerns for healthcare professionals and in particular for those dedicated to Hospital Pharmacy. For this reason, experts dedicated to this area must have a thorough mastery of the principles of pharmacokinetics and pharmacodynamics of these products, allowing them to make more precise recommendations on their use according to the patient's health conditions. In turn, the drugs in this family are continuously evolving to provide more specific therapeutic solutions that reduce their harmful impact on the intestinal flora, among other side effects. Also, specialized pharmacists must manage complementary methods that do not involve this type of products.

Based on all these needs, TECH has designed a Professional Master's Degree where students will have the opportunity to update their theoretical and practical knowledge on the most disruptive topics in Hospital Pharmacy. The syllabus delves into different products and updated drug administration techniques for cardiovascular, respiratory or neurological pathologies. On the other hand, the professionals will be able to deal with different intoxications and infectious diseases, as well as their different methods of therapeutic intervention in the context of specific care units or in emergencies. Thus, the syllabus offers all the guarantees for graduates to develop skills focused on efficient and safe pharmacological care in the most complex healthcare environments.

For this academic process, students will use the innovative Relearning methodology. This strategy, exclusive to TECH, facilitates the development of competencies based on the reiteration of complex concepts through different modules of the syllabus. In addition, access to these contents will not be subject to hermetic schedules or continuous evaluations. On the contrary, each participant will have the opportunity to access the materials whenever they prefers. Likewise, the 100% online platform of this program provides a variety of complementary multimedia resources, such as videos and infographics.

This **Professional Master's Degree in Hospital Pharmacy** 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 cutting-edge theoretical and practical knowledge through the disruptive and exclusive methodology implemented by TECH: Relearning"

This program will delve into the toxicokinetics and toxic effects of some drugs to prevent the occurrence of secondary discomfort or potential allergies in hospitalized patients"

A university qualification that you can access from the mobile device of your choice, anytime, anywhere, or by downloading its materials to consult them offline.

With this very complete TECH syllabus you will specialize as a hospital pharmacist in the pharmacological options for the management of Acute Pain in people with polytrauma.

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.

02

Objectives

With this qualification, TECH Technological University students have an unparalleled opportunity to update their skills in the pharmacotherapeutic management of patients in the hospital setting. To this end, the program offers an intensive tour of the most advanced ways of managing clinical situations, using patient-specific information and recent advances in pharmaceuticals. Thus, graduates will be able to implement more comprehensive treatment and monitoring plans, as well as have the ability to identify contraindications and be able to immediately modify their execution.

Updating your professional performance in the area of Hospital Pharmacy is the main objective of this TECH university program"

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

For the study of this program, you will not be obliged to complete tight schedules or continuous evaluations"

Specific Objectives

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 Epilepsy, Migraine and Myasthenia Gravis

- Delve into seizures in the adult patient: definitions, clinical presentation, antiepileptic drugs
- Deepen in seizures in the pediatric patient: definition, diagnosis, pharmacological management
- Update knowledge about Status Epilepticus (SE) in the adult patient
- Define SE in the pediatric patient, causes, diagnosis and treatment
- Management of myasthenia gravis (MG): definition, initial management, indications for intubation, drugs to avoid
- Inquire into Headache and Migraine in the adult patient, as well as incidence, types of Headache, diagnosis, first and second line treatments, pharmacological alternatives
- Be aware of the pharmacology in pediatric patients with Headache and Migraine
- Delve into the definition and diagnosis, initial management, patient education around hypertensive emergency

Module 4. Pharmacology of the Central Nervous System

- Explore the initial evaluation, imaging tests, multidisciplinary team, time-dependent pharmacology, endovascular therapy, antithrombotic treatment of ischemic stroke
- Delve into the management of hypertension in acute ischemic stroke: treatment selection, goals, objectives
- Describe the incidence, clinical presentation, mechanism and risk factors, management of oropharyngeal angioedema due to Alteplase
- Delve into the incidence, definition and clinical presentation, risk factors, initial management of hemorrhagic stroke - intracerebral hemorrhage (ICH)
- Be updated on diagnosis, initial emergency management, pharmacological and non-pharmacological measures in cerebral edema
- Delving into opioid overdose
- Be up to date on the management of the agitated patient (clinical presentation, initial management, first and second line therapies)
- Update knowledge on acute pain management in the substance abuse patient: general principles, multimodal analgesia
- Deepen in alcohol withdrawal syndrome: incidence, pathophysiology, signs and symptoms, severity of withdrawal, pharmacology and supportive therapies

Module 5. 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 6. Pharmacology of infectious diseases and intoxications

- Delve into the rational use of antibiotics, developing a complete analysis of their definitions and the most common infections to be treated with them
- Develop the pharmacological management of diseases such as skin and soft tissue infections
- Define the most complex pharmacological treatments for the treatment of Pneumonia, Meningitis, Sepsis, among other infectious diseases present in the hospital context

Module 7. Hospital Pharmacology Management

- Deepen the organization and efficient management of the Hospital Pharmacy Department, including the assignment of roles and responsibilities of the pharmaceutical staff
- Delve into hospital information systems, electronic medical records and automation in the preparation and dispensing of medications
- Inquire into the concepts of pharmacoeconomics and health technology assessment to analyze the efficiency and equity in the use of resources in the health care setting
- Implement and evaluate protocols for the use of medications in the hospital, ensuring their safe and efficient use and their integration with the hospital information system

Module 8. Pharmacology of the surgical and polytraumatized patient

- Master the pharmacological and general management of traumatic brain injury, triage procedures, scales and severity classification
- Delve into the reversal of antithrombotic drugs: coagulopathy, severity of bleeding, resuscitation, monitoring of coagulopathy, reversal agents, antifibrinolytics
- Delineate the pharmacological options for the management of Acute Pain, Spinal Shock, Neurogenic Shock and Hypovolemic Shock
- Assess the different sedative agents that promote moderate sedation, their levels and recommendations

Module 9. Pharmacology of the Genitourinary, Obstetric and Gynecologic System

- Identify the microorganisms related to Sexual Aggression, recommended tests, empirical treatment, emergency contraception, vaccination and HIV prophylaxis
- Manage the precise pharmacology for sexually transmitted diseases such as Chlamydia, Gonorrhea, Syphilis, as well as their incidence
- Investigate the management of Gestational Hypertension from its pathophysiology, risk assessment, clinical presentation and pharmacological treatment
- Differentiate the pathophysiology, classification, treatment of cystitis and pharmacotherapeutic follow-up after culture

Module 10. 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

Skills

This university program has been designed to update all the skills of Hospital Pharmacy professionals. It includes the main therapeutic innovations in this discipline. A rigorous and intensive training process that will provide students with a better understanding of the new routes of drug administration and the recommendations of each of them in correspondence to different pathologies. In addition, the academic itinerary is supported by disruptive methodologies such as case analysis, simulation of potential situations in the clinical environment and other techniques that will allow participants to strengthen their skills online, without unnecessary travel.

This Professional Master's Degree will guarantee you an advanced mastery of the sedation pathways that a specialist in Hospital Pharmacy must handle"

General Skills

- Comprehensively evaluate clinical situations and develop therapeutic plans based on patient, disease and laboratory specific data
- Identify, select, and administer optimal and sensitive therapies for different pathologies or physical conditions
- Apply published data and reports in the field of hospital pharmacy to patient care, integrating scientific evidence into clinical decision making
- Adjust and modify treatment plans based on patient response to initial therapy and clinical progress
- Work effectively in multidisciplinary health care teams, fostering clear and collaborative communication
- Comply with ethical and legal principles in the practice of Hospital Pharmacy

Specific Skills

- Evaluate and manage patients with Acute Coronary Syndrome and other cardiovascular disorders
- Address the management of heart failure and different cardiac arrhythmias, both in stable and unstable patients using the most advanced pharmacology
- Delve into the management and pharmacology of Asthma, COPD, Pneumonia, Anaphylaxis and other respiratory disorders
- Identify and treat seizures in adult and pediatric patients, including Status Epilepticus
- Properly manage Steven-Johnson Syndrome and Toxic Epidermal Necrolysis from the Hospital Pharmacy point of view, as well as Sedoanalgesia in post-intubation
- Point out the most appropriate pharmacotherapeutic protocols for patients with Migraine and Myasthenia Gravis
- Assess the pharmacological approach to the hypertensive emergency and the management of hypertension in acute ischemic stroke
- Identify and treat hydroelectrolytic disorders and hyperelectrolithemia, as well as gastrointestinal infections such as Clostridium Difficile infection
- Develop a complete analysis of the rational use of antibiotics for the treatment of common infectious diseases
- Address specific substance intoxications and learn about the management of acute psychosis and delirium
- Apply antidotes in cases of specific intoxications, such as Naloxone and N-acetylcysteine
- Master the pharmacological management of surgical and polytraumatized patients, including acute pain management
- Manage Gestational Hypertension and sexually transmitted diseases, such as Chlamydia, Gonorrhea and Syphilis
- Address pharmacotherapy and acute treatment of Sickle Cell disease

You will develop competencies from the most disruptive methods, analysis of real cases and practical simulation of potential complex phenomena in the hospital pharmacotherapeutic environment"

04

Course Management

The teachers of this Professional Master's Degree are endorsed by a distinguished professional career in the field of Hospital Pharmacy. Throughout their careers, they have been involved in complex processes such as logistics management and organization of products in stock in different healthcare facilities. At the same time, they have extensive skills in areas such as Clinical Analysis and the development of specific pharmacotherapeutic protocols for cardiorespiratory and neurological pathologies, among others. Through these qualifications and experiences, they have developed the present syllabus, giving it a seal of excellence and maximum updating.

The best teaching staff has brought together the most advanced theoretical and practical knowledge on Hospital Pharmacy in 10 exhaustive modules”

Management

Mr. Ramos 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

Mr. 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

Mr. Amor García, Miguel Ángel

- Hospital pharmacist at Infanta Cristina University Hospital
- Coordinator of the FarMIC Group of the Spanish Society of Hospital Pharmacy
- Member of the National Commission of Hospital Pharmacy, Ministry of Health of Spain
- Resident pharmacist at Gregorio Marañón University Hospital
- Hospital pharmacist at Salamanca Clinical Hospital
- Master's Degree in Medical Science Liaison at CESIF
- Degree in Pharmacy from the University of Salamanca

Dr. Fendián, Ángel Marcos

- Assistant Pharmacist at Hospital de la Canta Creu i Sant Joan de Déu
- Hospital Pharmacist in Intensive Care Unit at Hospital Clinic of Barcelona
- Assistant pharmacist at Hospital Universitary 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

Mr. Wood, Eduardo

- Head of Hospital Pharmacy Service at ICOT Group
- Specialist in Clinical Pathology at Life Length
- Specialist in Clinical Analysis and assistant pharmacist at Pérez del Toro y Gálvez CB Laboratory Pharmacy
- Clinical Analysis Specialist in Laboratorio González Santiago SL
- Clinical Laboratory Specialist at Eurofins Megalab
- Specialist in Clinical Analysis at Dr. Negrin University Hospital
- Degree in Pharmacy from the Complutense University of Madrid

Ms. Marques de Llano, Marta

- Assistant pharmacist at the Puigvert Foundation
- Pharmacist at the Drug Information Center of the Official College of Pharmacists of Avila
- Policy Coordinator at the Spanish Federation of Pharmacy Students
- Master's Degree in Hospital Pharmaceutical Sciences, Clinical, Hospital and Primary Care Pharmacy at UDIMA University
- Degree in Pharmacy from the University of Salamanca

05

Structure and Content

Hospital Pharmacy must offer services to a wide range of healthcare units, including emergency care, infectious diseases, neurological pathologies, among others. In this university program, professionals will be able to get up to date on the most advanced drugs and their forms of administration in the internal context of healthcare facilities. The syllabus, designed by the best experts, covers innovative aspects such as immunomodulatory therapies for conditions such as Myasthenia Gravis. In short, each module addresses specific aspects and provides practical skills using disruptive methods such as Relearning.

The innovative and unique methodologies of this program will enable you to master complex concepts related to Hospital Pharmacy in an efficient, fast and flexible way"

Module 1. Pharmacology of the Cardiovascular System

1.1. Acute Coronary Syndrome (ACS)
- 1.1.1. ST NSTEACS Segment-Elevation ACS
- 1.1.2. Non NSTEACS 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 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 Epilepsy, Migraine and Myasthenia Gravis

3.1. Adult Patient Seizures
- 3.1.1. Classification of Seizures
- 3.1.2. Differential diagnosis and clinical evaluation
- 3.1.3. Neuroimaging Studies in Diagnosis
- 3.1.4. Pharmacological treatment of seizures in the adult patient

3.2. Seizures in the pediatric patient
- 3.2.1. Classification of seizures in the pediatric patient
- 3.2.2. Differential diagnosis and clinical evaluation of seizures in the pediatric patient
- 3.2.3. Neuroimaging studies in the diagnosis of seizures in the pediatric patient
- 3.2.4. Febrile seizures in childhood

3.3. Status Epilepticus (SE) in the adult patient
- 3.3.1. Diagnosis and clinical evaluation of Status Epilepticus
- 3.3.2. Neurophysiological evaluation and neuroimaging in Status Epilepticus
- 3.3.3. Causes and triggers of Status Epilepticus in adults
- 3.3.4. Emergency management and treatment of Status Epilepticus in the adult patient

3.4. SE in the pediatric patient
- 3.4.1. Diagnosis and clinical evaluation of Status Epilepticus in the pediatric patient
- 3.4.2. Neurophysiological assessment and neuroimaging in pediatric Status Epilepticus
- 3.4.3. Causes and triggers of Status Epilepticus in children
- 3.4.4. Emergency management and treatment of Status Epilepticus in the pediatric patient

3.5. Management of Myasthenia Gravis (MG)
- 3.5.1. Classification of Myasthenia Gravis
- 3.5.2. Pharmacological Treatment of Myasthenia Gravis
- 3.5.3. Management of myasthenic crisis and acute exacerbations of myasthenia gravis
- 3.5.4. Immunomodulatory and biological therapies in myasthenia gravis

3.6. Headache and Migraine in the adult patient
- 3.6.1. Classification of primary and secondary headaches
- 3.6.2. Clinical evaluation and differential diagnosis of headache and Migraine in the adult patient
- 3.6.3. Initial therapeutic approach and management of episodic migraine
- 3.6.4. Migraine prophylaxis and prevention of chronic migraine headaches

3.7. Headache and Migraine in the pediatric patient
- 3.7.1. Classification of primary and secondary headaches in children
- 3.7.2. Clinical evaluation and differential diagnosis of headache and Migraine in the pediatric patient
- 3.7.3. Differences in the presentation and manifestation of Migraine in children and adults
- 3.7.4. Acute pharmacological treatment of migraine attacks in children

3.8. Hypertensive Emergencies
- 3.8.1. Classification and categories of hypertensive emergency
- 3.8.2. Clinical Evaluation and Diagnosis of Hypertensive Emergencies
- 3.8.3. Complementary tests and laboratory studies for the evaluation of hypertensive emergency
- 3.8.4. Differentiation between hypertensive emergency and hypertensive urgency

3.9. Principles of pharmacokinetics and pharmacodynamics applied to Epilepsy drugs
- 3.9.1. Pharmacokinetics of antiepileptic drugs
- 3.9.2. Pharmacological interactions of antiepileptic drugs
- 3.9.3. Combination treatment strategies
- 3.9.4. Use of antiepileptic drugs in special populations

3.10. Emerging and developing therapies for Migraine treatment
- 3.10.1. Therapies specifically targeting the pathophysiology of Migraine
- 3.10.2. Monoclonal therapies directed against calcitonin gene-related peptide (CGRP) in Migraine
- 3.10.3. PDE4 inhibitors as an emerging treatment for Migraine
- 3.10.4. Use of monoclonal antibodies in the prophylactic treatment of Migraine

Module 4. Pharmacology of the Central Nervous System

4.1. Ischemic Strokes
- 4.1.1. Advances in the early diagnosis of ischemic stroke
- 4.1.2. Evaluation and classification of the risk of ischemic stroke in asymptomatic patients
- 4.1.3. Thrombolytic treatment strategies in the acute phase of ischemic stroke
- 4.1.4. Biomarkers in Ischemic Stroke

4.2. Management of hypertension in acute ischemic stroke
- 4.2.1. Current guidelines and protocols for the management of hypertension in acute ischemic stroke
- 4.2.2. Pharmacologic treatment of hypertension in the acute phase of ischemic stroke
- 4.2.3. Blood pressure control strategies in ischemic stroke with thrombolytic therapy
- 4.2.4. Endovascular therapy and blood pressure control in acute ischemic stroke

4.3. Oropharyngeal angioedema due to Alteplase
- 4.3.1. Risk factors for the development of oropharyngeal angioedema after Alteplase administration
- 4.3.2. Clinical and differential diagnosis of oropharyngeal angioedema in patients treated with Aateplase
- 4.3.3. Management and treatment of acute oropharyngeal angioedema by Alteplase
- 4.3.4. Evaluation and follow-up of patients with a history of oropharyngeal angioedema prior to administration of Alteplase

4.4. Hemorrhagic stroke: intracerebral hemorrhage (ICH)
- 4.4.1. Diagnosis and classification of intracerebral hemorrhage in hemorrhagic stroke
- 4.4.2. Medical and pharmacological treatment of acute intracerebral hemorrhage
- 4.4.3. Neurosurgical and endovascular management of intracerebral hemorrhage
- 4.4.4. Multidisciplinary approach in the care of the patient with intracerebral hemorrhage

4.5. Cerebral edema
- 4.5.1. Cytotoxic versus vasogenic cerebral edema
- 4.5.2. Clinical evaluation and imaging of cerebral edema
- 4.5.3. Pharmacological strategies for the reduction of cerebral edema in specific pathologies
- 4.5.4. Effect of cerebral edema

4.6. Opioid overdose
- 4.6.1. Pharmacokinetics and pharmacodynamics of opioids involved in overdose
- 4.6.2. Role of the hospital pharmacist in opioid overdose prevention and education
- 4.6.3. Management of opioid withdrawal in the hospital setting
- 4.6.4. Naloxone and its use as an antidote in opioid overdose reversal

4.7. Opioid Withdrawal Syndrome
- 4.7.1. Epidemiology and risk factors for the development of Opioid Withdrawal Syndrome
- 4.7.2. Clinical evaluation and diagnosis of Opioid Withdrawal Syndrome in hospitalized patients
- 4.7.3. Pharmacological management of Opioid Withdrawal Syndrome in the hospital setting
- 4.7.4. Use of opioid agonist and antagonist drugs in the treatment of withdrawal syndrome

4.8. Agitated Patient Management
- 4.8.1. Epidemiology and risk factors associated with agitation in hospitalized patients
- 4.8.2. Pharmacotherapy for the management of acute agitation in inpatients
- 4.8.3. Use of antipsychotics and benzodiazepines in the treatment of agitation
- 4.8.4. Safety and prevention of complications in the management of the agitated patient

4.9. Acute pain management in the patient with substance abuse
- 4.9.1. Pharmacological interactions between analgesics and substances of abuse
- 4.9.2. Pharmacological strategies for acute pain management in patients with opioid abuse
- 4.9.3. Acute pain Treatment in patient with Alcohol abuse
- 4.9.4. Assessment and management of addiction risk in patients with substance abuse requiring analgesia

4.10. Alcohol Withdrawal Syndrome
- 4.10.1. Clinical evaluation and diagnosis of Alcohol Withdrawal Syndrome in hospitalized patients
- 4.10.2. Pharmacotherapy for the management of Alcohol Withdrawal Syndrome in the inpatient setting
- 4.10.3. Use of benzodiazepines and other drugs in the treatment of Alcohol Withdrawal Syndrome
- 4.10.4. Role of the hospital pharmacist in the management of Alcohol Withdrawal Syndrome

Module 5. Pharmacology of the Gastrointestinal System

5.1. Chronic Hepatic Disease
- 5.1.1. Diagnosis and classification of chronic liver diseases
- 5.1.2. Biomarkers and liver function tests in diagnosis and follow-up
- 5.1.3. Strategies for management and prevention of disease progression
- 5.1.4. Pharmacological treatment of chronic liver disease

5.2. Upper gastrointestinal bleeding (UGH)
- 5.2.1. Epidemiology and risk factors associated to Upper Gastrointestinal Bleeding
- 5.2.2. Classification and Etiology of Upper Gastrointestinal Bleeding
- 5.2.3. Diagnosis and early detection methods of HDA
- 5.2.4. Pharmacological Treatment of HDA

5.3. Spontaneous Bacterial Peritonitis (SBP)
- 5.3.1. Anatomy and physiology of the peritoneum and its relationship with PBE
- 5.3.2. Clinical diagnosis and methods of detection of spontaneous bacterial peritonitis
- 5.3.3. Evaluation and classification of patients with SBP
- 5.3.4. Pharmacological treatment of spontaneous bacterial peritonitis

5.4. Hydroelectrolytic Alterations
- 5.4.1. Sodium
- 5.4.2. Chlorine
- 5.4.3. Potassium
- 5.4.4. Phosphorus

5.5. Clostridium difficile infection (CDI)
- 5.5.1. Epidemiology and risk factors associated to CDI
- 5.5.2. CDI Diagnosis
- 5.5.3. Clinical evaluation of the patient with Clostridium difficile infection
- 5.5.4. Pharmacological Treatment of CDI

5.6. Complicated intra-abdominal infection (CAIbc)
- 5.6.1. Epidemiology and risk factors associated to complicated intra-abdominal infection
- 5.6.2. Etiology and pathogenesis of cCBI
- 5.6.3. Clinical evaluation of the patient with cBAI
- 5.6.4. Pharmacological treatment of complicated intra-abdominal infection

5.7. Pancreatitis
- 5.7.1. Epidemiology and risk factors associated to Pancreatitis
- 5.7.2. Etiology and Classification of Pancreatitis
- 5.7.3. Clinical diagnosis and methods of detection of Pancreatitis
- 5.7.4. Pharmacological treatment of acute and chronic pancreatitis

5.8. Irritable Bowel Syndrome
- 5.8.1. Anatomy and physiology of the gastrointestinal system related to irritable bowel syndrome
- 5.8.2. Etiology and pathogenesis of irritable bowel syndrome
- 5.8.3. Classification and subtypes of IBS
- 5.8.4. Medical treatment of irritable bowel syndrome

5.9. Prokinetics and antiemetics
- 5.9.1. Anatomy and physiology of the gastrointestinal system and the control of motility
- 5.9.2. Classification and mechanisms of action of prokinetics and antiemetics
- 5.9.3. Indications and contraindications for the use of prokinetics and antiemetics
- 5.9.4. Pharmacological treatment of nausea and vomiting induced by opioids and other drugs

5.10. Pharmacology of drugs used in nutritional therapy
- 5.10.1. Classification and Types of nutritional therapy
- 5.10.2. Administration of drugs and enteral nutrition: interactions and special considerations
- 5.10.3. Medications used for the management of malnutrition and nutritional support in critically ill patients
- 5.10.4. Antibiotics and antifungals in enteral and parenteral nutrition patients

Module 6. Pharmacology of infectious diseases and intoxications

6.1. Responsible Antibiotic Use
- 6.1.1. Classification
- 6.1.2. Mechanisms of action
- 6.1.3. Spectrum of activity
- 6.1.4. Principles of antibiotic pharmacokinetics and pharmacodynamics

6.2. Urinary Tract Infections(ITU)
- 6.2.1. Anatomy and physiology of the urinary tract related to urinary tract infection
- 6.2.2. Etiology and pathogenesis of cCBI
- 6.2.3. Classification of Urinary Tract Infection
- 6.2.4. Pharmacologic treatment of urinary tract infection

6.3. Skin and soft tissue infection (STEMI)
- 6.3.1. Anatomy and physiology of skin and soft tissues related to IPPB
- 6.3.2. Classification and Types of Skin and Soft Tissue Infections
- 6.3.3. Evaluation of the patient with IPPB in the hospital setting
- 6.3.4. Pharmacologic treatment of Skin and Soft Tissue Infections

6.4. Pneumonia
- 6.4.1. Anatomy and physiology of the Respiratory System relationship with Pneumonia
- 6.4.2. Etiology and pathogenesis of pneumonia
- 6.4.3. Classification of pneumonia according to etiology and severity
- 6.4.4. Pharmacological Treatment of Pneumonia

6.5. Meningitis
- 6.5.1. Anatomy and physiology of the central nervous system relationship with Meningitis
- 6.5.2. Classification of meningitis according to the causative agent and the clinical presentation
- 6.5.3. Evaluation and classification of the patient with meningitis
- 6.5.4. Pharmacological Treatment of Meningitis

6.6. Sepsis
- 6.6.1. Anatomy and physiology of the immune system related to sepsis
- 6.6.2. Etiology and pathogenesis of Sepsis
- 6.6.3. Classification and Stages of Sepsis
- 6.6.4. Pharmacological Treatment of Sepsis

6.7. Acute psychosis and delirium
- 6.7.1. Etiology and pathogenesis of acute psychosis and delirium
- 6.7.2. Classification and subtypes of acute psychosis delirium
- 6.7.3. Assessment and classification of the patient with acute psychosis and delirium in the hospital setting
- 6.7.4. Pharmacological treatment of acute psychosis and delirium

6.8. Acetylsalicylic acid (ASA) intoxication
- 6.8.1. Toxicokinetics of acetylsalicylic acid in intoxication
- 6.8.2. Toxic effects and clinical symptoms associated with acetylsalicylic acid poisoning
- 6.8.3. Clinical diagnosis and methods of detection of AAS poisoning
- 6.8.4. Treatment and pharmacotherapeutic management of ASA poisoning

6.9. Paracetamol poisoning
- 6.9.1. Toxicokinetics of Paracetamol in poisoning
- 6.9.2. Toxic effects and clinical symptoms associated with Paracetamol poisoning
- 6.9.3. Clinical diagnosis and methods of detection of Paracetamol poisoning
- 6.9.4. Treatment and pharmacotherapeutic management of ASA poisoning

6.10. Antidotes
- 6.10.1. General principles of poisoning management in the hospital setting
- 6.10.2. Identification and diagnosis of poisonings and intoxications
- 6.10.3. Pharmacotherapeutic management of poisonings
- 6.10.4. Use and administration of antidotes in specific poisonings

Module 7. Hospital Pharmacology Management

7.1. Human Resources Management in the Hospital Pharmacy Department
- 7.1.1. Organization of the Hospital Pharmacy Department
- 7.1.2. Roles of the pharmaceutical staff
- 7.1.3. Performance evaluation and professional development of the pharmaceutical staff
- 7.1.4. Design of education and training programs for pharmaceutical personnel

7.2. Information technologies applied to Hospital Pharmacy management
- 7.2.1. Hospital information systems and their integration with the Pharmacy department
- 7.2.2. Electronic medical records and pharmacotherapeutic registries in the hospital environment
- 7.2.3. Automation and robotics in the preparation and dispensing of medications
- 7.2.4. Inventory management and stock control systems in the pharmacy department

7.3. Inventory management and pharmaceutical logistics in hospitals
- 7.3.1. Organization and structure of the pharmacy department in the context of hospital logistics
- 7.3.2. Selection and evaluation of pharmaceutical suppliers
- 7.3.3. Receipt, storage and distribution of drugs and pharmaceuticals
- 7.3.4. Rotation and expiration of inventory in the hospital environment

7.4. Pharmacoeconomics and health technology assessment
- 7.4.1. Methods and techniques of health economic analysis
- 7.4.2. Analysis of efficiency and equity in the use of resources in the health sector
- 7.4.3. Assessment of health outcomes and health-related quality of life
- 7.4.4. Use of health and economic indicators in clinical and administrative decision making

7.5. Development and monitoring of protocols for the use of drugs in hospitals
- 7.5.1. The role of the hospital pharmacist in the development of protocols
- 7.5.2. Design and development of protocols for the safe and efficient use of medications
- 7.5.3. Implementation and dissemination of protocols in the health care team
- 7.5.4. Integration of medication use protocols with the hospital information system

7.6. Pharmacovigilance and patient safety in the administration of medications
- 7.6.1. Pharmacovigilance systems and databases in the hospital setting
- 7.6.2. Reporting and recording of adverse drug-related events
- 7.6.3. Methods for the early detection of adverse drug reactions
- 7.6.4. Active and passive pharmacovigilance in hospital pharmacy

7.7. Ambulatory clinical pharmacy and outpatient care
- 7.7.1. Models of outpatient pharmaceutical care in the hospital setting
- 7.7.2. Pharmaceutical evaluation of outpatients: collection and analysis of clinical and pharmacotherapeutic data
- 7.7.3. Elaboration of pharmacological treatment plans and outpatient monitoring
- 7.7.4. Use of information technologies in outpatient pharmaceutical care

7.8. Quality Management and Continuous Improvement in Hospital Pharmacy
- 7.8.1. quality standards applicable to hospital pharmacy
- 7.8.2. Implement of quality management system
- 7.8.3. Evaluation and improvement of processes in the hospital pharmacy area
- 7.8.4. Internal and external audits in hospital pharmacy quality management

7.9. Integration of hospital pharmacy in multidisciplinary health teams
- 7.9.1. Models of interprofessional and multidisciplinary care in the hospital setting
- 7.9.2. Roles and responsibilities of the pharmacist in multidisciplinary health teams
- 7.9.3. Effective communication and collaboration among health care professionals in the hospital setting
- 7.9.4. Clinical cases and case discussion in multidisciplinary teams

7.10. Project Management and Strategic Planning in Hospital Pharmacy
- 7.10.1. Processes and methodologies for project management in the field of hospital pharmacy
- 7.10.2. Identification and formulation of pharmaceutical projects in hospital pharmacy
- 7.10.3. Planning and organization of resources for the implementation of projects
- 7.10.4. Implementation and follow-up of pharmaceutical projects

Module 8. Pharmacology of the surgical and polytraumatized patient

8.1. Triage
- 8.1.1. Triage in emergency and disaster situations:
- 8.1.2. Triage systems used in the hospital setting and their characteristics
- 8.1.3. Role of the pharmacist in the triage process and emergency care
- 8.1.4. Pharmaceutical triage protocols in different clinical scenarios

8.2. Resuscitation in the polytraumatized patient (PPT)
- 8.2.1. Hospital pharmacy in the PPT resuscitation team
- 8.2.2. Pharmacology of resuscitation: drugs and therapies used in PPT
- 8.2.3. Fluid therapy in the polytraumatized patient: types of solutions and considerations
- 8.2.4. Analgesia and sedation in the polytraumatized patient

8.3. Cranioencephalic Trauma (CET)
- 8.3.1. Classification and Severity of CET
- 8.3.2. Pain management and sedation in patients with CET
- 8.3.3. Treatment of Intracranial Hypertension
- 8.3.4. Use of neuroprotective agents in CET

8.4. Reversal of anticoagulants
- 8.4.1. Importance of anticoagulant reversal in specific clinical situations
- 8.4.2. Risk-benefit assessment in anticoagulant reversal
- 8.4.3. Reversal of unfractionated heparin (UFH) and low-molecular-weight heparin (LMWH)
- 8.4.4. Antidotes and reversal agents for direct oral anticoagulants (OACDs)

8.5. Acute Pain Management
- 8.5.1. Classification and scales for the evaluation of acute pain
- 8.5.2. Principles and guidelines of pharmacological management of acute pain
- 8.5.3. Multimodal Analgesia
- 8.5.4. Intravenous, oral and transdermal analgesia

8.6. Spinal *Shock*
- 8.6.1. Evaluation and classification of spinal *shock*
- 8.6.2. Medications to stabilize blood pressure in spinal cord *shock*
- 8.6.3. Pain Management in Patients with Spinal *shock*
- 8.6.4. Neuroprotective agents in spinal *shock*

8.7. Hypovolemic Shock
- 8.7.1. Evaluation and classification of Hypovolemic *Shock*
- 8.7.2. Fluid therapy and volume replacement in hypovolemic *shock*
- 8.7.3. Types of solutions and electrolytes used in volume replacement
- 8.7.4. Use of vasoactive agents in the management of hypovolemic *shock*

8.8. Penetrating Trauma
- 8.8.1. Evaluation and classification of patients with penetrating trauma
- 8.8.2. Initial management and pharmacological stabilization of the trauma patient
- 8.8.3. Use of hemostatic agents and pharmacologic hemostasis
- 8.8.4. Antibiotherapy in penetrating trauma patients

8.9. Open Fractures
- 8.9.1. Initial evaluation and emergency management of patients with open fractures
- 8.9.2. Use of analgesia and sedation in patients with open fractures
- 8.9.3. Adjuvant therapies in the acceleration of bone healing
- 8.9.4. Use of analgesics and anti-inflammatory drugs in the management of pain in open fractures

8.10. Moderate sedation
- 8.10.1. Indications and contraindications of moderate sedation
- 8.10.2. Evaluation and selection of the appropriate level of sedation for each patient
- 8.10.3. Management of anxiety and pain in procedures with moderate sedation
- 8.10.4. Monitoring and patient safety during moderate sedation

Module 9. Pharmacology of the Genitourinary, Obstetric and Gynecologic System

9.1. Sexual Assault
- 9.1.1. Medical and pharmacological considerations in the immediate care of victims of sexual assault
- 9.1.2. Pharmacotherapy for the prevention and treatment of sexually transmitted infections (STIs)
- 9.1.3. Post-exposure prophylaxis (PEP) for HIV and other STIs in victims of sexual assault
- 9.1.4. Pharmacologic therapy to prevent and treat physical injuries and psychological complications

9.2. Sexually Transmitted Diseases
- 9.2.1. Epidemiology of sexually transmitted diseases
- 9.2.2. Prevention and promotion of sexual health in at-risk populations
- 9.2.3. Pharmacotherapy for the treatment of sexually transmitted infections (STIs)
- 9.2.4. Post-exposure prophylaxis (PEP) for HIV and other STIs

9.3. Gestational hypertension
- 9.3.1. Classification and diagnosis of gestational hypertension
- 9.3.2. Pharmacology of drugs used in the management of gestational hypertension
- 9.3.3. Monitoring and control of blood pressure in pregnant women
- 9.3.4. Pharmacological management of mild and severe gestational hypertension

9.4. Venous thromboembolism
- 9.4.1. Classification and diagnosis of venous thromboembolism
- 9.4.2. Pharmacology of anticoagulants used in the treatment of VTE
- 9.4.3. Use of parenteral and oral anticoagulants in the management of VTE
- 9.4.4. VTE prophylaxis in hospitalized and surgical patients

9.5. Acute uncomplicated cystitis
- 9.5.1. Classification and diagnosis of Acute Cystitis
- 9.5.2. Pharmacology of antibiotics used in the treatment of Acute Cystitis
- 9.5.3. Use of analgesic drugs in pain relief in acute cystitis
- 9.5.4. Alternatives to antibiotics in the treatment of Acute Cystitis

9.6. Urinary Tract Infections
- 9.6.1. Classification and diagnosis of Urinary Tract Infection
- 9.6.2. Pharmacology of antibiotics used in the treatment of the ITU
- 9.6.3. Use of analgesic drugs in pain relief in the ITU
- 9.6.4. Treatment of complicated and recurrent urinary tract infections

9.7. Principles of pharmacokinetics and pharmacodynamics applied to gynecologic drug medications
- 9.7.1. Principles of absorption
- 9.7.2. Principles of metabolism
- 9.7.3. Principles of excretion
- 9.7.4. Relevant drug interactions in the area of Gynecology

9.8. Pharmacology of drugs used in the Genitourinary System
- 9.8.1. Drugs used in the treatment of urinary tract infections (UTI)
- 9.8.2. Drugs used in the treatment of erectile dysfunction and other sexual disorders
- 9.8.3. Pharmacotherapy in the management of benign prostatic hyperplasia (BPH)
- 9.8.4. Medications for the management of renal disorders, such as nephritis and chronic renal failure

9.9. Pharmacology of the obstetric system
- 9.9.1. Pharmacology of prenatal supplements and micronutrients used in pregnancy
- 9.9.2. Drugs used in the treatment of nausea and vomiting of pregnancy
- 9.9.3. Drugs for the management of hypertensive disorders in pregnancy (preeclampsia and eclampsia)
- 9.9.4. Use of drugs in the prevention and treatment of infections during pregnancy

9.10. Pathophysiology of menstrual disorders
- 9.10.1. Menstrual bleeding disorders: menorrhagia, metrorrhagia, and hypomenorrhea
- 9.10.2. Premenstrual syndrome (PMS) and premenstrual dysphoric disorder (PMDD)
- 9.10.3. Endometriosis: pathologic mechanisms and clinical manifestations
- 9.10.4. Polycystic ovary syndrome (PCOS): characteristics and consequences

Module 10. Pharmacology of Oncohematologic Emergencies

10.1. Venous thromboembolism in oncohematological patients
- 10.1.1. Epidemiology and risk factors of VTE in oncohematologic patients
- 10.1.2. Diagnosis and classification of venous thromboembolism in patients with hematologic cancers
- 10.1.3. Pharmacology of anticoagulants used in the treatment and prevention of VTE in oncohematological patients
- 10.1.4. Use of thrombolytics in severe cases of VTE in oncohematologic patients

10.2. Tumor Lysis Syndrome
- 10.2.1. Classification and diagnosis of Tumor Lysis Syndrome
- 10.2.2. Use of allopurinol and rasburicase in the prevention and management of hyperuricemia in SLT
- 10.2.3. Treatment of electrolyte disturbances in the Tumor Lysis Syndrome
- 10.2.4. Pharmacologic management of hyperkalemia in patients with SLT

10.3. Tumor hypercalcemia
- 10.3.1. Mechanisms of action of tumors to provoke hypercalcemia
- 10.3.2. Types of tumors associated with Hypercalcemia
- 10.3.3. Diagnosis and classification of tumor hypercalcemia
- 10.3.4. Risk assessment and prognostic factors in patients with tumor hypercalcemia

10.4. Febrile Neutropenia
- 10.4.1. Mechanisms of action of tumors to provoke hypercalcemia
- 10.4.2. Types of tumors associated with Hypercalcemia
- 10.4.3. Diagnosis and classification of tumor hypercalcemia
- 10.4.4. Risk assessment and prognostic factors in patients with tumor hypercalcemia

10.5. Sickle cell disease
- 10.5.1. Genetics and inheritance of sickle cell disease
- 10.5.2. Diagnosis and Classification of sickle cell disease
- 10.5.3. Pharmacology of drugs used in the treatment and management of SCD
- 10.5.4. Use of hydroxyurea in the treatment and prevention of vasoocclusive crises

10.6. Mechanisms of development and progression of oncohematological diseases
- 10.6.1. Genetics and molecular biology of normal and cancerous hematopoietic cells
- 10.6.2. Mechanisms of malignant transformation of hematopoietic cells
- 10.6.3. Role of genetic mutations in hematologic oncogenesis
- 10.6.4. Tumor microenvironment and its influence on the progression of oncohematological diseases

10.7. Pharmacology of drugs used in Oncohematological Emergencies
- 10.7.1. Pharmacology of drugs used in stabilization and life support in oncohematological patients
- 10.7.2. Pharmacological management of acute hematological complications, such as severe anemia and thrombocytopenia
- 10.7.3. Pharmacotherapy in cases of febrile neutropenia in patients with blood cancers
- 10.7.4. Use of drugs for the control of acute pain in oncohematological patients

10.8. Treatment of febrile neutropenia
- 10.8.1. Etiology and risk factors of febrile neutropenia in oncologic and hematologic patients
- 10.8.2. Diagnosis and classification of Febrile Neutropenia
- 10.8.3. Pharmacology of antibiotics used in the empirical treatment of febrile neutropenia
- 10.8.4. Use of colony-stimulating factors (G-CSF) in the management of febrile neutropenia

10.9. Treatment of tumor lysis syndrome
- 10.9.1. Risk factors and prediction of the risk of developing tumor lysis syndrome
- 10.9.2. Diagnosis and classification of Tumor Lysis Syndrome
- 10.9.3. Pharmacology of drugs used in the prophylaxis and treatment of Tumor Lysis Syndrome
- 10.9.4. Use of allopurinol and rasburicase in the prevention and management of hyperuricemia in SLT

10.10. Leukemia and Lymphoma Emergencies
- 10.10.1. Oncohematologic Emergencies
- 10.10.2. Acute Leukemia Emergencies
- 10.10.3. Pharmacology of induction and consolidation treatments in acute leukemias
- 10.10.4. Treatment of infectious complications in patients with leukemias and lymphomas

A 100% online program through which you will manage with rigor the precise pharmacology for sexually transmitted diseases as a hospital pharmacist"

06

Methodology

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

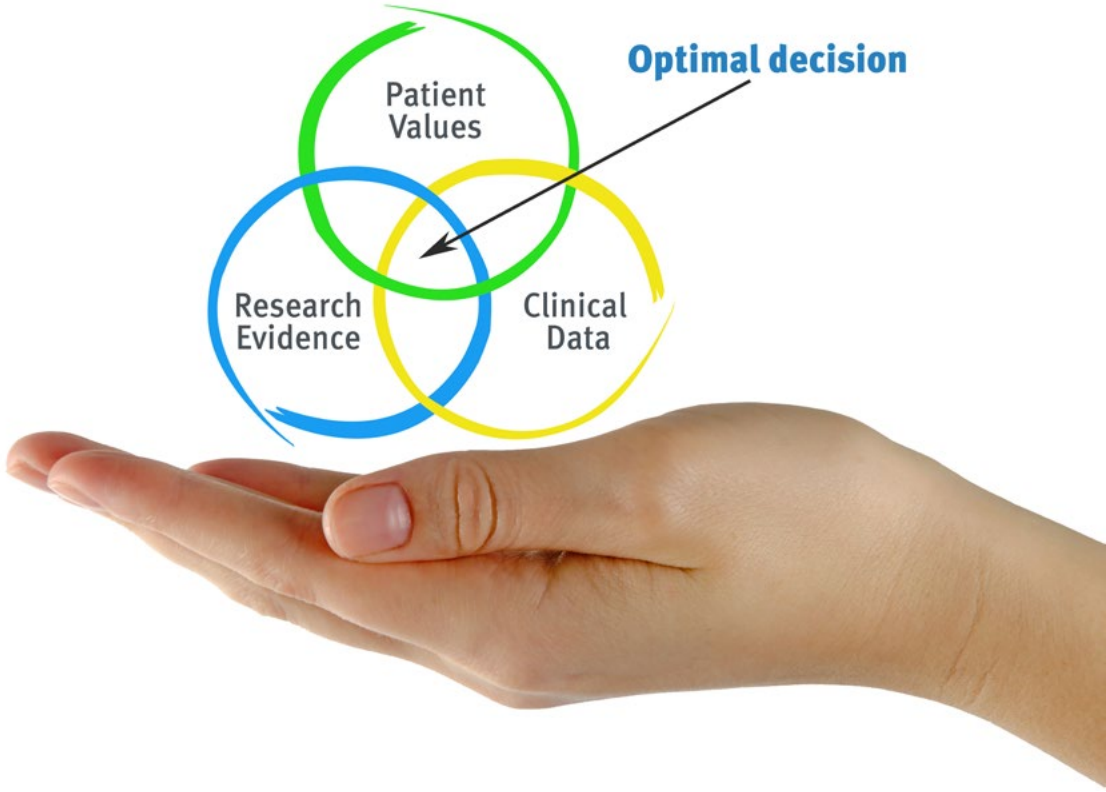
This teaching system is used, for example, in the most prestigious medical schools in the world, and major publications such as the **New England Journal of Medicine** have considered it to be one of the most effective.

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. 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, attempting to recreate the actual conditions in a pharmacist'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:

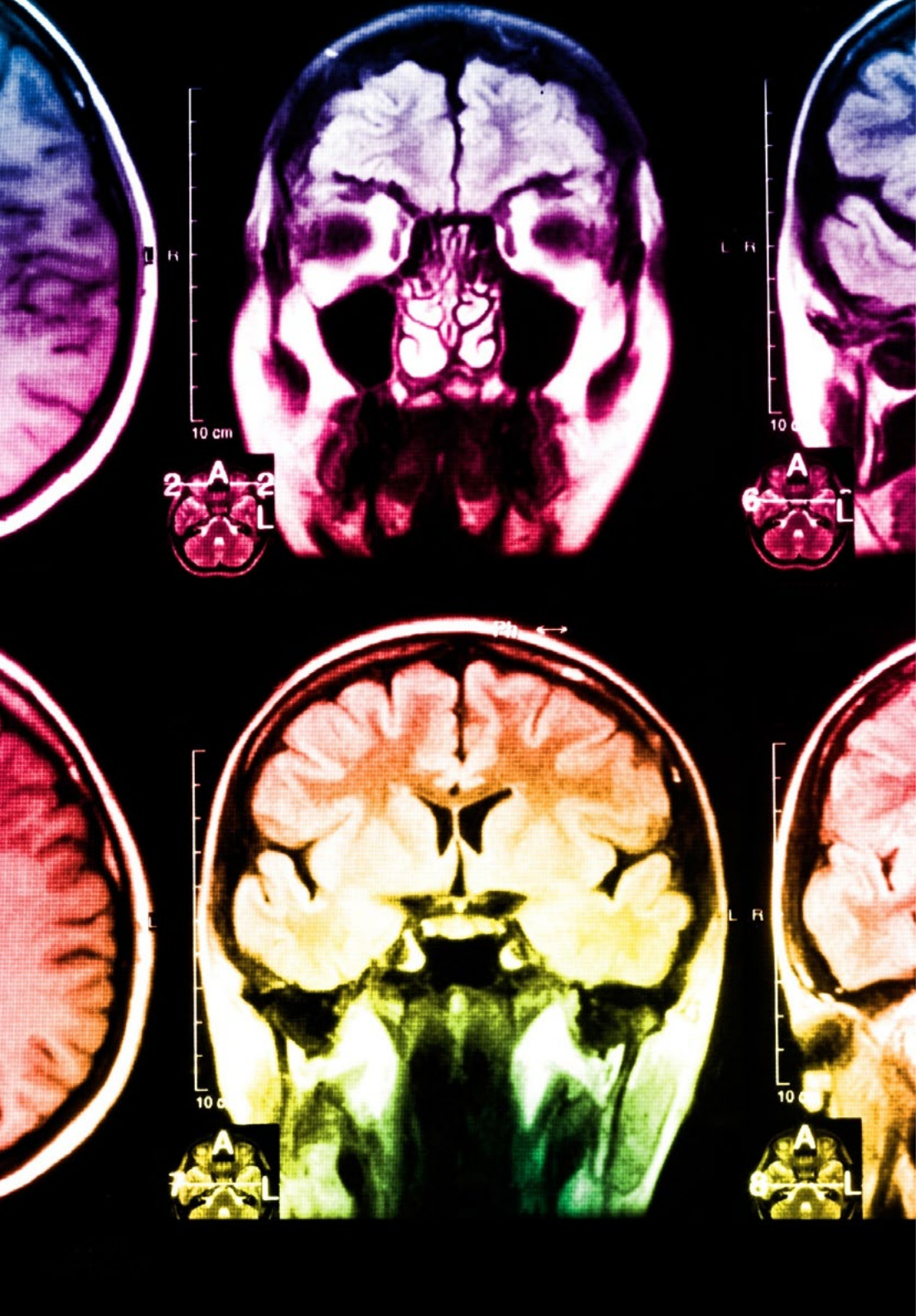
1. Pharmacists who follow this method not only grasp concepts, but also develop their mental capacity, by evaluating real situations and applying their knowledge.
2. Learning is solidly translated into practical skills that allow the student to better integrate into the real world.
3. Ideas and concepts 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.

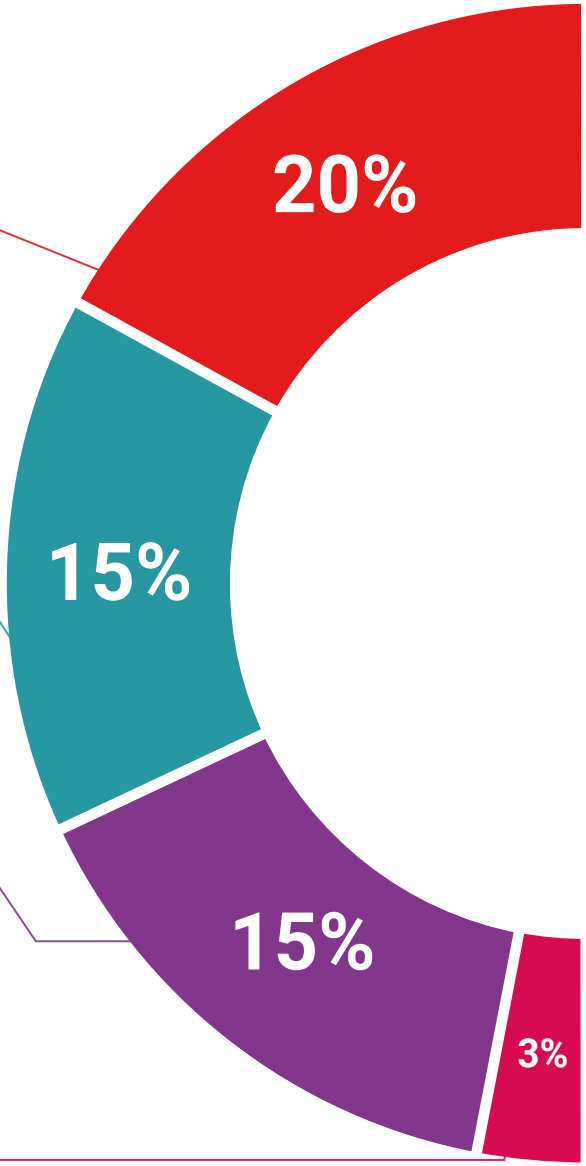
Interactive Summaries

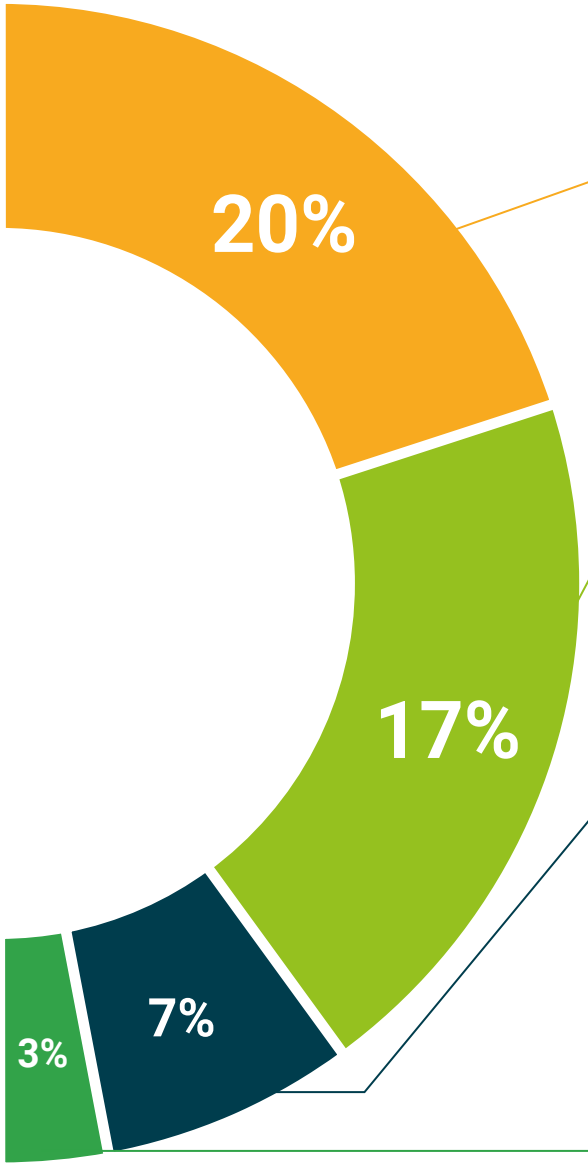
The TECH team presents the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

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.

07

Certificate

The Professional Master's Degree in Hospital Pharmacy guarantees students, in addition to the most rigorous and up-to-date education, access to a Professional Master's Degree 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 **Professional Master's Degree in Hospital Pharmacy** 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 **Professional Master's Degree** issued by **TECH Technological University** via tracked delivery*.

The certificate issued by **TECH Technological University** will reflect the qualification obtained in the Professional Master's Degree, and meets the requirements commonly demanded by labor exchanges, competitive examinations, and professional career evaluation committees.

Title: **Professional Master's Degree in Hospital Pharmacy**

Official N° of Hours: **1,500 h.**


tech technological university

Awards the following

CERTIFICATE

to

Mr./Ms. _____, with identification number _____.

For having successfully passed and accredited the following program

PROFESSIONAL MASTER'S DEGREE

in

Hospital Pharmacy

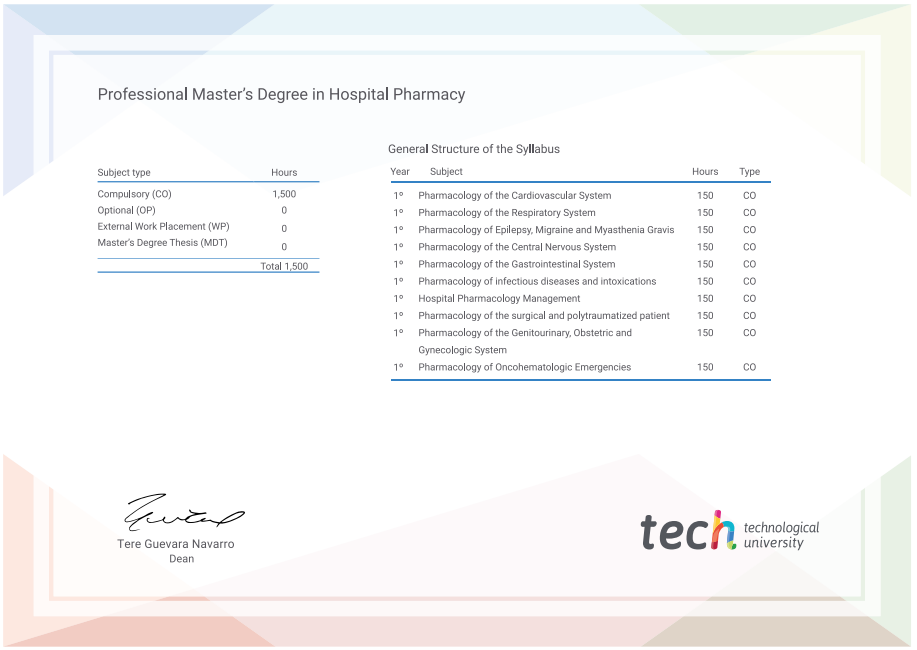
This is a qualification awarded by this University, equivalent to 1,500 hours, with a start date of dd/mm/yyyy and an end date of dd/mm/yyyy.

TECH is a Private Institution of Higher Education recognized by the Ministry of Public Education as of June 28, 2018.

June 17, 2020

Tere Guevara Navarro
Dean

Unique TECH Code: AFWORD23S techtitute.com/certificates


Professional Master's Degree in Hospital Pharmacy

Subject type	Hours
Compulsory (CO)	1,500
Optional (OP)	0
External Work Placement (WP)	0
Master's Degree Thesis (MDT)	0
	Total 1,500

General Structure of the Syllabus

Year	Subject	Hours	Type
1°	Pharmacology of the Cardiovascular System	150	CO
1°	Pharmacology of the Respiratory System	150	CO
1°	Pharmacology of Epilepsy, Migraine and Myasthenia Gravis	150	CO
1°	Pharmacology of the Central Nervous System	150	CO
1°	Pharmacology of the Gastrointestinal System	150	CO
1°	Pharmacology of infectious diseases and intoxications	150	CO
1°	Hospital Pharmacology Management	150	CO
1°	Pharmacology of the surgical and polytraumatized patient	150	CO
1°	Pharmacology of the Genitourinary, Obstetric and Gynecologic System	150	CO
1°	Pharmacology of Oncohematologic Emergencies	150	CO

Tere Guevara Navarro
Dean

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*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.

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Professional Master's Degree

Hospital Pharmacy

- Modality: **online**
- Duration: **12 months**
- Certificate: **TECH Technological University**
- Dedication: **16h/week**
- Schedule: **at your own pace**
- Exams: **online**

Professional Master's Degree

Hospital Pharmacy

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