

# Postgraduate Diploma

## Update on Chronic Kidney Disease





## Postgraduate Diploma Update on Chronic Kidney Disease

- » Modality: Online
- » Duration: 6 months.
- » Certificate: TECH Global University
- » Credits: 18 ECTS
- » Schedule: at your own pace
- » Exams: online

Website: [www.techitute.com/us/medicine/postgraduate-diploma/postgraduate-diploma-update-chronic-kidney-disease](http://www.techitute.com/us/medicine/postgraduate-diploma/postgraduate-diploma-update-chronic-kidney-disease)

# Index

01

Introduction

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*p. 4*

02

Objectives

---

*p. 8*

03

Course Management

---

*p. 12*

04

Structure and Content

---

*p. 18*

05

Methodology

---

*p. 24*

06

Certificate

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*p. 32*

# 01

# Introduction

According to the latest studies, approximately 10% of the world's population suffers from Chronic Kidney Disease. This alarming figure has led to the development of advanced procedures to address this condition in order to ensure the survival of those who suffer from it. As a result, physicians need to be aware of these advances in order to optimize their professional update. For this reason, TECH has created this program, which allows the specialist to identify the most up-to-date early diagnostic methods and sophisticated treatments for CKD. In addition, the program is 100% online, enabling the student to study from any electronic device with an Internet connection.





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*Delve into the latest modifiable and non-modifiable risk factors of Chronic Kidney Disease thanks to this Postgraduate Diploma that only TECH offers you”*



In recent years, it has become increasingly evident that early detection and timely management of CKD can improve clinical outcomes and reduce associated mortality rates. As a result, innovative diagnostic methods have emerged for early identification of CKD, as well as cutting-edge therapeutic approaches that are highly effective in the prevention and treatment of CKD. Therefore, specialists are obliged to keep constantly up to date in this field in order to position themselves at the medical forefront.

In view of this, TECH has developed this Postgraduate Diploma, which will provide the specialist with an excellent update on the approach to CKD. During 6 months of intensive study, you will delve into the up to date drugs that contribute to the treatment of Hyperkalemia in CKD. In addition, you will learn about the sophisticated nutritional strategies that improve the quality of life in patients with this condition or the recent advances on the immune response in CKD.

Thanks to the fact that this program is presented in a 100% online format, the expert will be able to combine his daily activities and learning activities, since he will not be subject to a pre-established schedule. Additionally, the program incorporates *Relearning* methodology, which will allow you to delve further into the key aspects of the syllabus at your own pace of study in order to consolidate the acquisition of up to date knowledge.

This **Postgraduate Diploma in Update on Chronic Kidney Disease** contains the most complete and up-to-date scientific program on the market. Its most notable features are:

- ♦ Practical cases presented by specialists in Nephrology and Internal medicine.
- ♦ The graphic, schematic, and practical contents with which they are created, provide scientific and practical information on the disciplines that are essential for professional practice.
- ♦ Practical exercises where self-assessment can be used to improve learning.
- ♦ Its special emphasis on innovative methodologies
- ♦ Theoretical lessons, questions to the expert, debate forums on controversial topics, and individual reflection assignments
- ♦ Content that is accessible from any fixed or portable device with an Internet connection



*With this qualification, you will delve into the up to date diagnostic and therapeutic protocol for Acute Respiratory Infection".*

“

*In just 6 months, you will learn about the latest therapies and molecules available for the management of Anemia in patients with Chronic Kidney Disease”.*

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

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

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

*You will identify, throughout this program, the revolutionary techniques in Renal Replacement Therapy.*

*Get up to date with the best experts in the management of Chronic Kidney Disease.*



# 02 Objectives

The main objective of this program is to provide the physician with the most up to date knowledge on the approach to CKD. In this way, they will be able to improve the health care and clinical outcomes of patients suffering from CKD. All this, in a 100% online way and enjoying the most advanced educational methodology in the pedagogical environment.







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*Position yourself as a leading nephrologist in only 6 months of intensive study".*

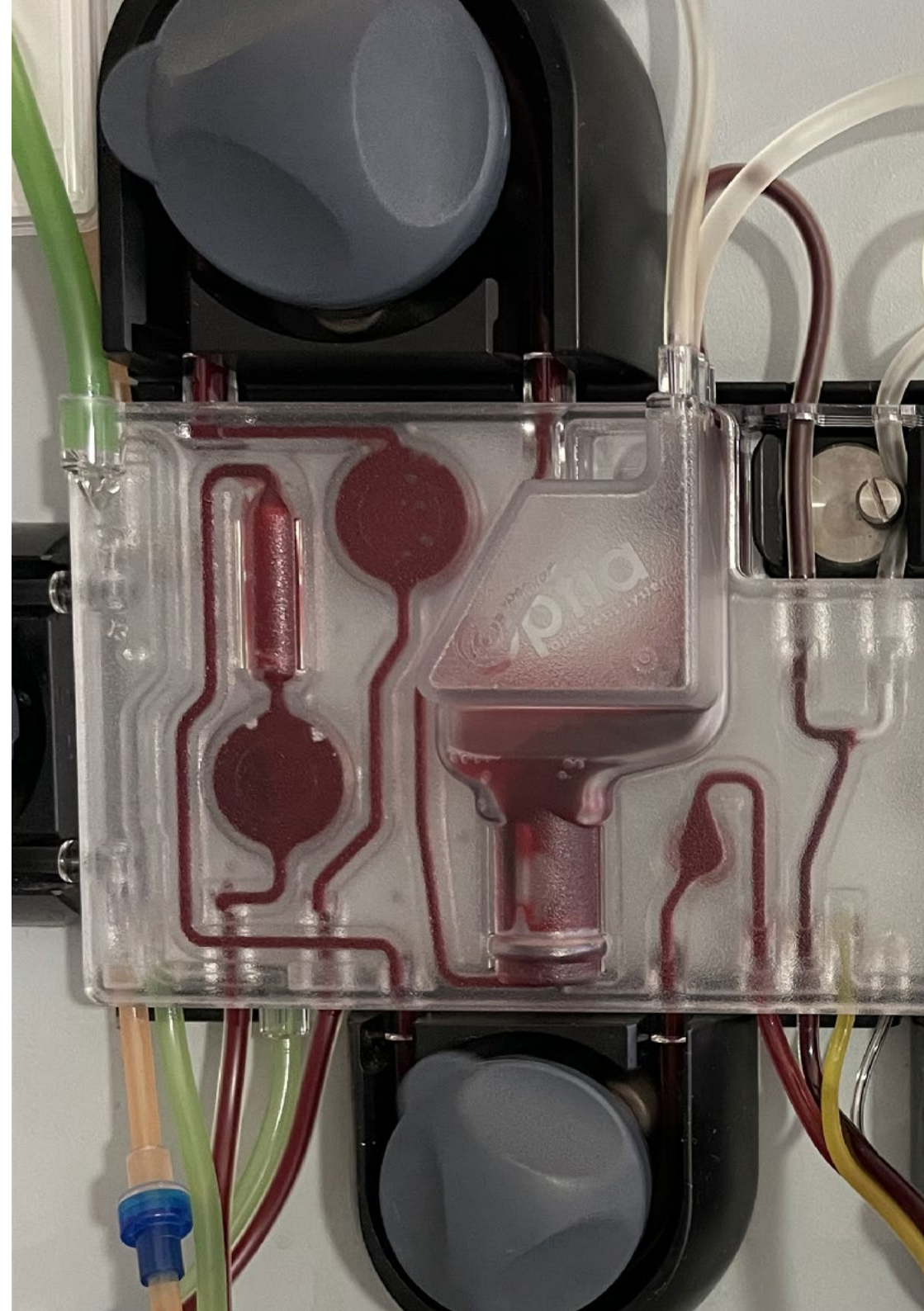


## General Objectives

- ♦ Care for patients with chronic kidney disease and its most frequent complications.
- ♦ Care for patients with acute renal failure and its complications, as well as to understand the objective of initiating renal replacement therapy, its indications and management.
- ♦ Have an overview of Nephrology as a specialty with its different branches of knowledge and a global approach to the patient.
- ♦ Understand and learn the branches that are emerging within the specialty such as diagnostic and interventional nephrology, onconeurology, or cardioneurology.



*With TECH, you will learn the most up to date aspects of ultrafiltration management in critically ill patients."*







## Specific Objectives

### Module 1. Chronic Kidney Disease(CKD)

- ♦ Understand and know CKD as a systemic disease, as well as its particularities.
- ♦ Understand the most common complications in patients with CKD.
- ♦ To know the particularities of patients with CKD in different special clinical situations (indication of anticoagulation, dyslipidemia, cardiovascular risk)

### Module 2. Acute Renal Failure (ARF)

- ♦ Learn the latest developments in the diagnosis of acute renal failure. Know the prognostic urinary biomarkers.
- ♦ Learn in depth about Acute Kidney Injury as a syndrome, understanding its approach.
- ♦ Learn the different renal replacement techniques in patients with acute renal failure. Their advantages and disadvantages
- ♦ Understand the particularities of nutrition management and antibiotic dosage in patients with acute kidney injury.

### Module 3. Renal Replacement Therapy

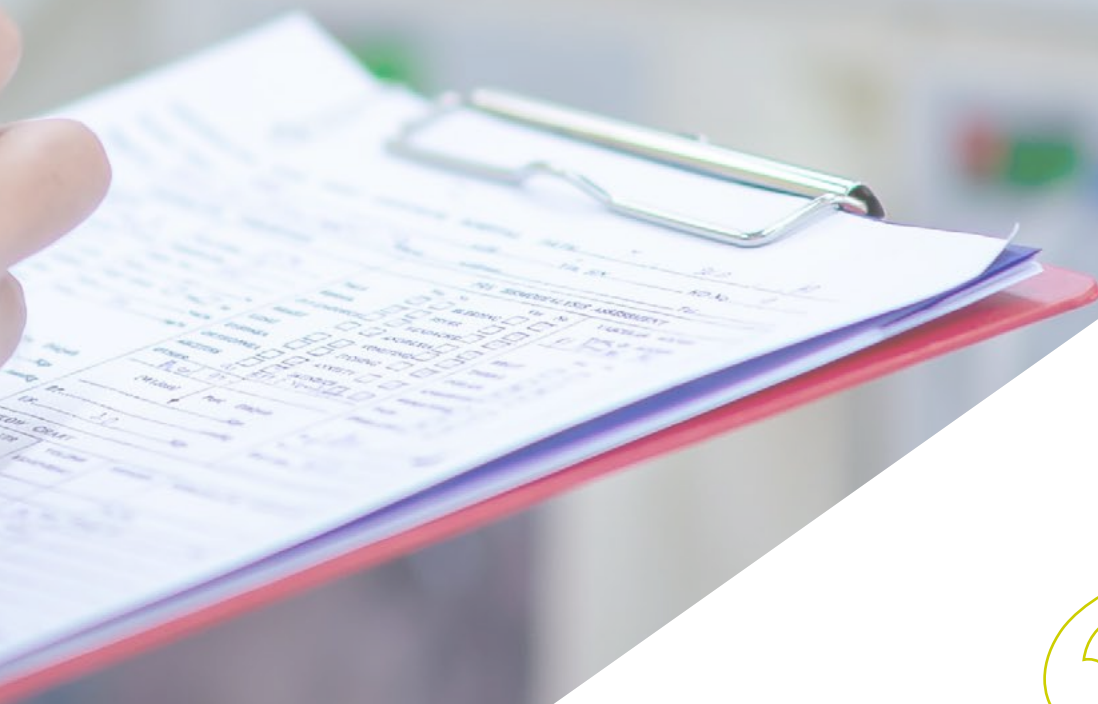
- ♦ Know the best renal replacement technique for each patient, as well as the choice of the best vascular access in each case.
- ♦ Know in depth the indications to start a hemodialysis program.
- ♦ Understand the indications for initiating a dialysis program in the form of home hemodialysis or peritoneal dialysis.
- ♦ Understand that there are contraindications to continue a hemodialysis program and understand the need for collaboration with a palliative program to respond to patients who withdraw from a dialysis program.

03

# Course Management

To preserve the educational quality that distinguishes TECH, this program has an educational team composed of recognized specialists in Nephrology. These professionals, who play an active role in leading hospital centers, have extensive skills in the management of Renal Diseases, surgical interventions and dialysis therapy. Therefore, the knowledge obtained by the student will be up to date according to the latest advances in this field.





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*Refine and update your knowledge on the management of Chronic Kidney Disease with specialists with extensive hospital experience”.*



## International Guest Director

With an extensive professional career of over 30 years, Dr. David Mount has become a prestigious Nephrologist highly specialized in the area of Renal Medicine. In this sense, his clinical approach focuses on providing personalized clinical programs according to the individual characteristics of patients with chronic and acute conditions. Thanks to the application of multiple innovative techniques, he has managed to optimize both the quality of life of numerous individuals and their long-term recovery prognosis.

In this same line, he has carried out his functions in health institutions of international reference such as the Brigham and Women's Hospital in Massachusetts. Therefore, he has held strategic roles ranging from Renal Area Management or Management of the Inpatient Dialysis Unit to the Head of Clinical Services. In this way, he has focused on improving the standards of care for users with renal diseases, implementing cutting-edge protocols to maximize therapeutic processes such as hemodialysis and minimize the usual associated risks such as the complication of vascular access.

It has also led the Digital Transformation of various healthcare institutions and implemented solutions such as Artificial Intelligence, Big Data and even Intelligent Systems to monitor the status of individuals in real time. These tools have managed to increase the accuracy in diagnoses and treatments of complex Kidney Diseases. Also, this avant-garde vision has made it possible to reduce hospitalization rates, which has improved the functioning of health systems by promoting a more efficient, accessible and high quality care model.

On the other hand, he has balanced these tasks with his facet as a Clinical Researcher. In fact, he has a vast scientific production in areas such as cutting-edge techniques for Renal Transplants, identification of Biomarkers and strategies for the prevention of Renovascular Hypertension.





## Dr. Mount, David

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- Clinical Chief of the Renal Division at Brigham and Women's Hospital in Massachusetts, United States
- Director of Dialysis Services at Brigham and Women's Hospital, Massachusetts
- System of Care Physician, VA Boston Healthcare System, Massachusetts
- Vanderbilt University Medical Center, Vanderbilt University Medical Center, Vanderbilt
- Nephrology Internship at Brigham and Women's Hospital, Massachusetts
- Internal Medicine Residency at Toronto General Hospital
- Doctor of Medicine from the University of Toronto
- Bachelor of Science in Biochemistry from the University of Ottawa

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*Thanks to TECH, you will be able to learn with the best professionals in the world”*

## Address



### **Dr. Ribas Closa, Andrés**

- ♦ Nephrologist at the Sant Jordi Clinic in Sant Andreu
- ♦ Nephrology Del Mar Hospital, Barcelona
- ♦ Expert in Clinical Ultrasound at the Francisco de Vitoria University.
- ♦ Master's Degree in Infectious Diseases and Antimicrobial Treatment from the CEU Cardenal Herrera University
- ♦ Degree in Medicine from the Autonomous University of Barcelona.



### **Dr. Angulo, Josep María**

- ♦ Head of Nephrology Service at Fundació Althaia in Manresa
- ♦ Head of Nephrology Service at the Hospital de Palamós
- ♦ Professor of Nephrology at the International University of Catalonia
- ♦ Former President of the Catalan Societies of Nephrology and Arterial Hypertension
- ♦ Specialization in Nephrology by the Hospital de Bellvitge
- ♦ Postgraduate degree in Basic Nephrology from the University of Minnesota.
- ♦ Degree in Medicine and Surgery from the University of Barcelona
- ♦ Member of: Spanish Society of Nephrology and Arterial Hypertension



## Professors

### Dr. Outón, Sara

- ◆ Nephrologist at Consorci Sanitari Alt Penedès-Garraf
- ◆ Pediatric Nephrologist in the University of California
- ◆ Degree in Medicine from the University of Santiago de Compostela.

### Dr. Pascual Sánchez, Sergio

- ◆ Specialized in Nephrology at Consorci Sanitari Alt Penedès-Garraf
- ◆ Psychiatric Monitor at CPB (Serveis Salut Mental)
- ◆ Master's Degree in Neurobiology and Behavior from the Instituto Superior de Estudios Psicológicos (Higher Institute of Psychological Studies)
- ◆ Degree in Medicine from the Autonomous University of Barcelona.
- ◆ Degree in Psychology from the Autonomous University of Barcelona.

# 04

## Structure and Content

This Postgraduate Diploma offers a syllabus that covers relevant topics in the field of Renal Diseases. In this regard, it will present advanced content that includes the diagnosis of these pathologies, risk factors or their up to date therapeutic protocols. In addition, its 100% online format will give students the freedom to carry out their daily activities without interruptions, since they will not have to limit themselves to pre-established study schedules.







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*Incorporate into your medical practice the most up to date knowledge on the approach to Chronic Kidney Disease”.*

## Module 1. Chronic Kidney Disease(CKD)

- 1.1 Epidemiology and diagnosis of CKD
  - 1.1.1. Epidemiology of CKD in our setting
  - 1.1.2. *Global Burden of Disease*
  - 1.1.3. Diagnosis. KDIGO 2021-2022 Guidelines
  - 1.1.4. Chronic Kidney Disease vs. Renal Aging
- 1.2 Risk Factors
  - 1.2.1. Non-modifiable risk factors
  - 1.2.2. Modifiable risk factors
  - 1.2.3. Sarcopenia and fragility
- 1.3 Anemia and Chronic Kidney Disease
  - 1.3.1. Definition and management of Anemia in Chronic Kidney Disease Patients
  - 1.3.2. New molecules for the treatment of anemia in CKD patients
  - 1.3.3. Iron Metabolism in Chronic Kidney Disease
- 1.4 Bone mineral metabolism in CKD
  - 1.4.1. Mineral metabolism alterations: Calcium, phosphorus, Klotho, PTH, FGF-23 and Vitamin D
  - 1.4.2. Primary vs. secondary hyperparathyroidism in CKD patients
  - 1.4.3. New molecules for the treatment of secondary hyperparathyroidism
  - 1.4.4. Osteoporosis in CKD
- 1.5 Cardiovascular alterations and Inflammation in CKD
  - 1.5.1. Cardiac remodeling in CKD
  - 1.5.2. Vascular calcification in CKD
  - 1.5.3. Cardiovascular study of the patient with CKD
- 1.6 Hyperkalemia in Chronic Kidney Disease
  - 1.6.1. Management of the patient with hyperkalemia
  - 1.6.2. New drugs for the treatment of hyperkalemia
- 1.7 Nutrition in Chronic Kidney Disease
  - 1.7.1. Health education in the patient with CKD
  - 1.7.2. Malnutrition in Chronic Kidney Disease
  - 1.7.3. Nutritional Supplements

- 1.8 Anticoagulation in the CKD Patient
  - 1.8.1. Indications in Atrial Fibrillation
  - 1.8.2. Antivitamin K in CKD
  - 1.8.3. New oral anticoagulants in CKD
- 1.9 Dyslipidemia and Cardiovascular Risk in CKD
  - 1.9.1. Indication for treatment with lipid-lowering drugs in CKD
  - 1.9.2. Global cardiovascular risk in patients with CKD
- 1.10 Immunological response in CKD
  - 1.10.1. COVID19 infection and vaccines
  - 1.10.2. Hepatitis B and C Virus Prophylaxis

## Module 2. Acute Renal Failure (ARF)

- 2.1 New Diagnostics and Classification
  - 2.1.1. Acute Renal Insufficiency Markers KIM-1, TIMP-2
  - 2.1.2. Classification of ARF Nomenclature
  - 2.1.3. Inflammation in ARF Kidney-Heart, Kidney-Lung Interaction.
- 2.2 Diagnostic and Therapeutic Protocol of ARF
  - 2.2.1. Water balance and ARF
  - 2.2.2. Dyselectrolythemia in patients with ARF. Hyperkalemia in the critically ill patient
  - 2.2.3. Utility of diuretics in ARF
  - 2.2.4. Utility of albumin as a colloid in ARF
- 2.3 Acute Renal Failure and Renal Replacement Therapy
  - 2.3.1. Early vs. late initiation of renal replacement therapy
  - 2.3.2. Indications for renal replacement therapy
- 2.4 Continuous Renal Replacement Techniques (CRRT)
  - 2.4.1. Indication Machines
  - 2.4.2. Guideline, effluent dose
  - 2.4.3. Utility of replacement liquid Prefilter. Postfilter
  - 2.4.4. TCRR circuit anticoagulation
- 2.5 Hybrid Renal Replacement Techniques
  - 2.5.1. Definition
  - 2.5.2. Uses. Evidence of its usefulness in the critically ill patient.evidence of Coagulopathy in Critical Patients



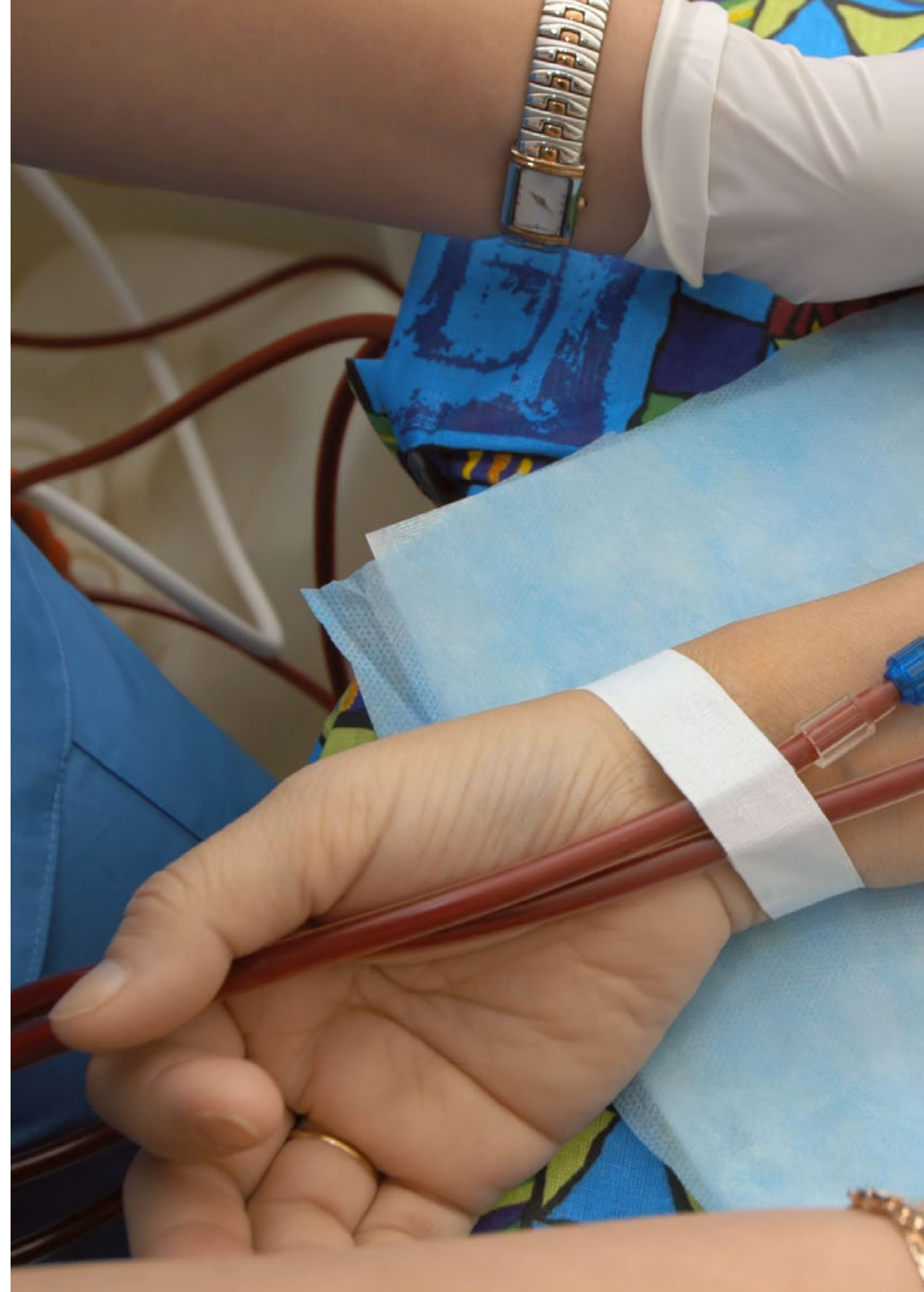


- 2.5.3. Advantages and Disadvantages of the Hybrid Techniques
- 2.6 Intermittent Hemodialysis in the Critically Ill Patient
  - 2.6.1. Intermittent Hemodialysis in the Critically Ill Patient
  - 2.6.2. Dialysis Dosis regimen
  - 2.6.3. Ultrafiltration in the hemodynamically unstable patient
- 2.7 Respiratory Dialysis
  - 2.7.1. Pathophysiology of ARDS
  - 2.7.2. Protective mechanical ventilation
  - 2.7.3. Usefulness of ECCO2R membranes
- 2.8 Kidney and Sepsis
  - 2.8.1. New developments in Sepsis and Septic Shock
  - 2.8.2. Principles of antimicrobial prescribing in ARF
  - 2.8.3. Renal replacement therapy in the patient with septic shock
- 2.9 Nutrition in the Acute Renal Failure Patient
  - 2.9.1. Protein-caloric malnutrition
  - 2.9.2. Hypercatabolism in the Critically Ill Patient
- 2.10 Antibiotics in the Critically Ill Patient undergoing Renal Substitutive Treatment
  - 2.10.1. Determinants of antibiotic distribution ( $V_d$  proteins)
  - 2.10.2. Adjustment of the main drugs according to pharmacokinetics/ pharmacodynamics
  - 2.10.3. Adjustment of drugs according to the dialysis technique employed

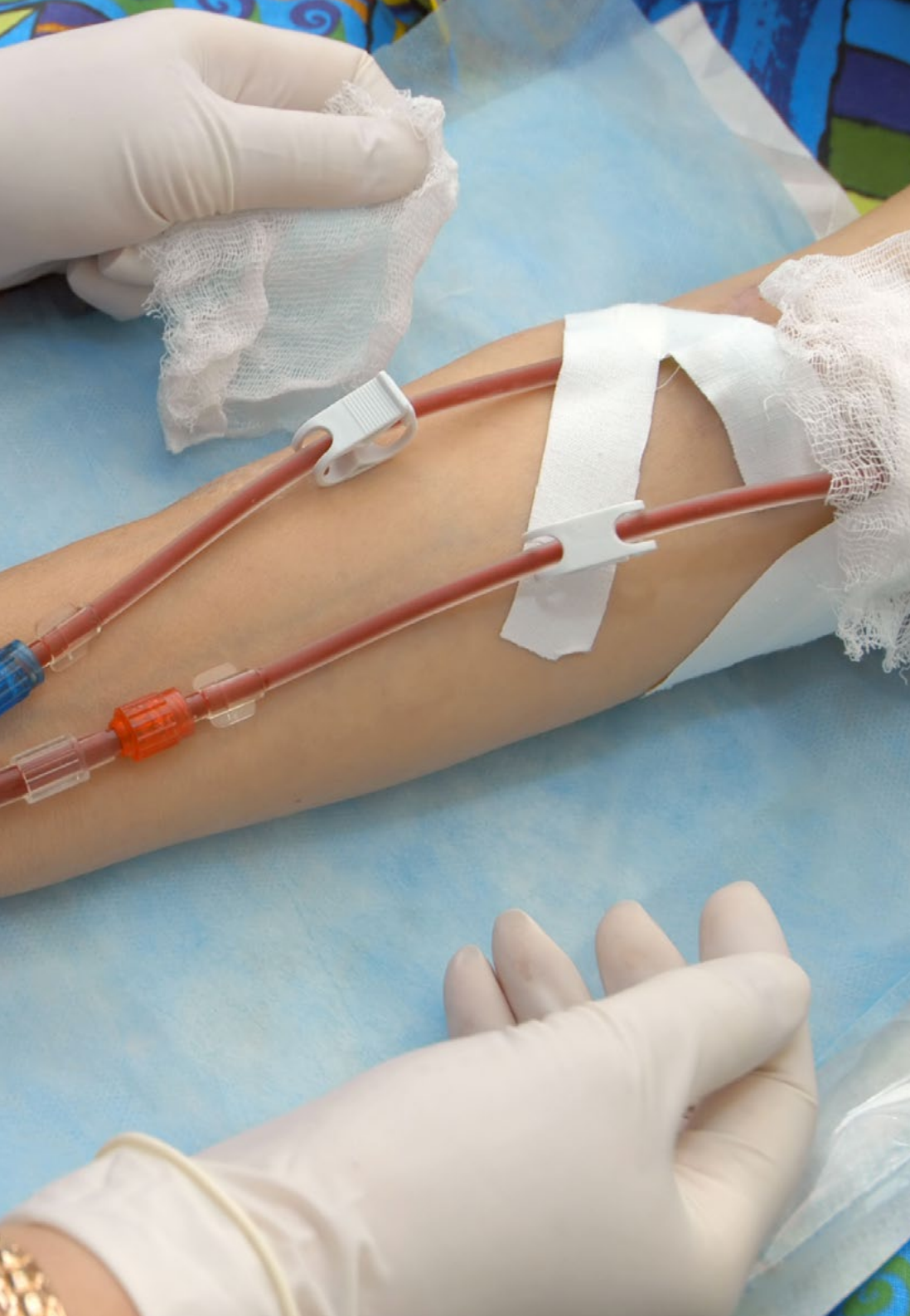
### Module 3. Renal Replacement Therapy

- 3.1 Choice of Technique
  - 3.1.1. Renal replacement Therapy indications
  - 3.1.2. Contraindications of Renal Replacement Therapy
  - 3.1.3. Choice of Treatment
- 3.2 Hemodialysis Vascular Access
  - 3.2.1. Arterio-Venous Fistula
  - 3.2.2. Prosthesis
  - 3.2.3. Central venous Catheter

- 3.2.4. Choice of vascular access
- 3.3 Hemodialysis
  - 3.3.1. High-Flow Hemodialysis
  - 3.3.2. On-Line Hemodialysis. Indication, technique and adequacy of the same
  - 3.3.3. Extended hemodialysis and incremental hemodialysis
- 3.4 Peritoneal Dialysis
  - 3.4.1. Techniques, indications
  - 3.4.2. Contraindications of Peritoneal Dialysis. Complications
  - 3.4.3. Choice of Technique: APD or CAPD
- 3.5 Complications in Hemodialysis
  - 3.5.1. Hypotension.
  - 3.5.2. Arrhythmias in Hemodialysis Patients
  - 3.5.3. Allergy to the dialyzer
- 3.6 Complications in Peritoneal Dialysis
  - 3.6.1. PD catheter migration
  - 3.6.2. Peritonitis in the PD patient
- 3.7 Home Hemodialysis.
  - 3.7.1. Indications
  - 3.7.2. Technique and contraindications
  - 3.7.3. Origin of home hemodialysis. Future
- 3.8 Fragility in the Hemodialysis Patient
  - 3.8.1. Sarcopenia
  - 3.8.2. Undernourishment in the Hemodialysis Patient
  - 3.8.3. Physical Exercise and Hemodialysis
- 3.9 Anticoagulation in Hemodialysis
  - 3.9.1. Antivitamin K in Hemodialysis
  - 3.9.2. Contraindications
  - 3.9.3. Controversies in the Hemodialysis Patient
  - 3.9.4. NACOS
- 3.10 Withdrawal from the Hemodialysis Program
  - 3.10.1. Indications
  - 3.10.2. BORRAR
  - 3.10.3. Palliative Care in Nephrology







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*The Relearning method presented by this qualification will allow you to update your knowledge at your own pace and without time constraints".*

# 05 Methodology

This 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***.



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*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 face multiple simulated clinical cases, based on real patients, in which they will have to do research, establish hypotheses, and ultimately resolve the situation. There is an abundance of scientific evidence on the effectiveness of the method. Specialists learn better, faster, and more sustainable 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, trying to recreate the real conditions in the physician’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 Students who follow this method not only achieve the assimilation of concepts, but also a development of their mental capacity, through exercises that assess real situations and the application of knowledge.
- 2 Learning is solidly translated into practical skills that allow the student to better integrate into the real world.
- 3 Ideas and concepts are understood more efficiently, given that the example situations are based on real-life.
- 4 Students like to feel that the effort they put into their studies is worthwhile. This then translates into a greater interest in learning and more time dedicated to working on the course.



## Relearning Methodology

TECH effectively combines the Case Study methodology with a 100% online learning system based on repetition, which combines 8 different teaching elements in each lesson.

We enhance the Case Study with the best 100% online teaching method: Relearning.

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





At the forefront of world teaching, the Relearning method has managed to improve the overall satisfaction levels of professionals who complete their studies, with respect to the quality indicators of the best online university (Columbia University).

With this methodology, more than 250,000 physicians have been prepared with unprecedented success in all clinical specialties regardless of surgical load. Our educational methodology is developed in a highly competitive environment, with a university student body with a strong socioeconomic profile and an average age of 43.5 years old.

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

In our program, learning is not a linear process, but rather a spiral (learn, unlearn, forget, and re-learn). Therefore, we combine each of these elements concentrically.

The overall score obtained by TECH's learning system is 8.01, according to the highest international standards.



This program offers the best educational material, prepared with professionals in mind:



#### Study Material

All teaching material is produced by the specialists who teach the course, specifically for the course, so that the teaching content is highly specific and precise.

These contents are then adapted in audiovisual format, to create the TECH online working method. All this, with the latest techniques that offer high-quality pieces in each and every one of the materials that are made available to the student.



#### Surgical Techniques and Procedures on Video

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



#### Interactive Summaries

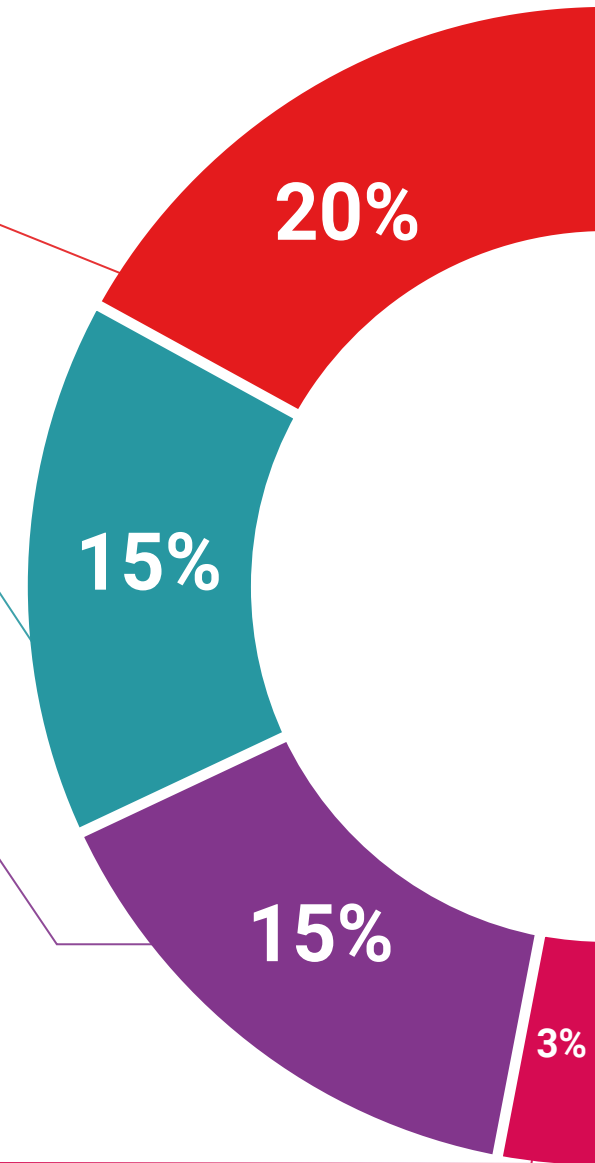
The TECH team presents the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

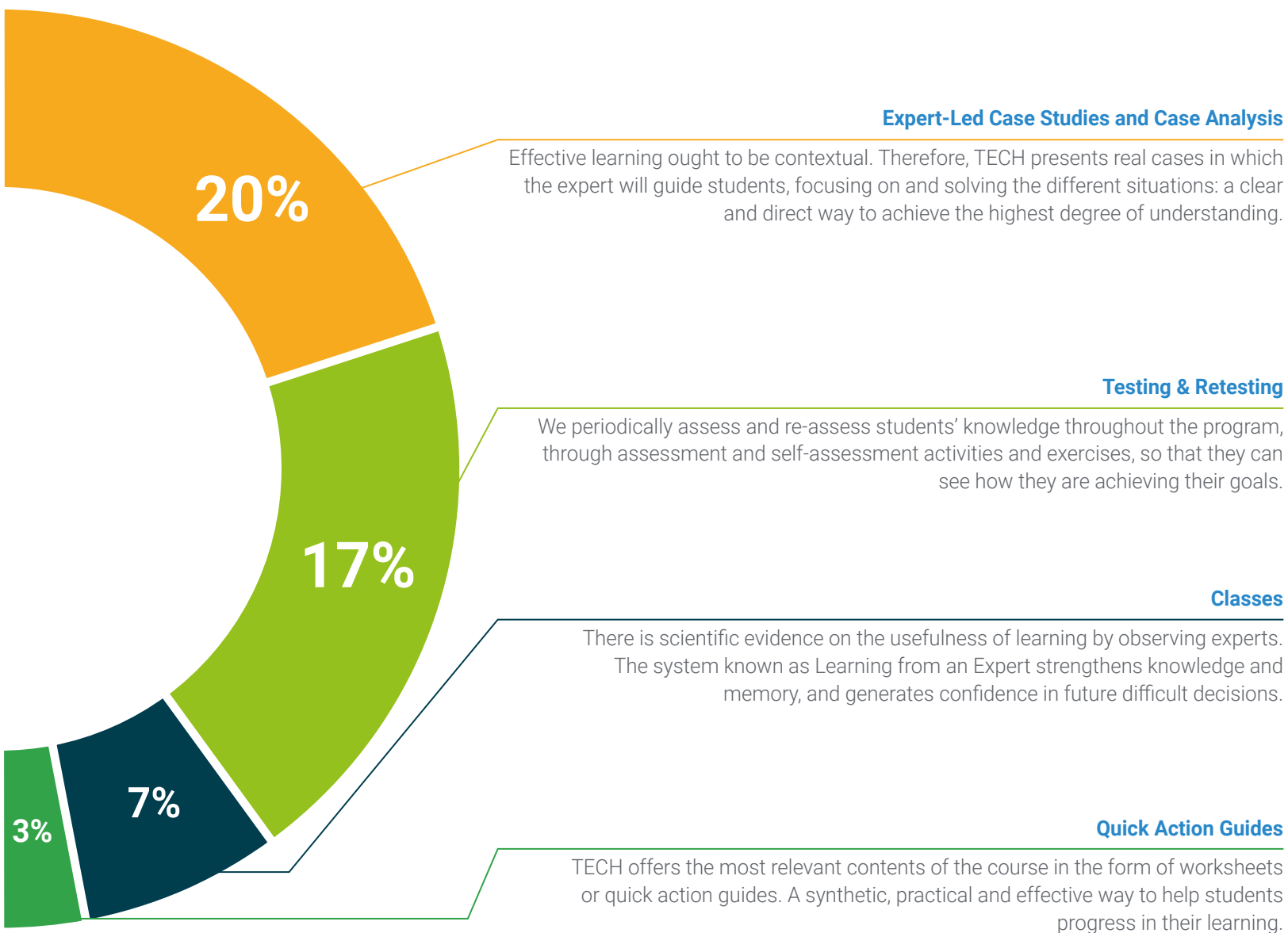
This exclusive educational system for presenting multimedia content was awarded by Microsoft as a "European Success Story".



#### Additional Reading

Recent articles, consensus documents and international guidelines, among others. In TECH's virtual library, students will have access to everything they need to complete their course.







# 06 Certificate

The Postgraduate Diploma in Update on Chronic Kidney Disease guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Diploma issued by TECH Global University.







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

This program will allow you to obtain your **Postgraduate Diploma in Update on Chronic Kidney Disease** endorsed by **TECH Global University**, the world's largest online university.

**TECH Global University** is an official European University publicly recognized by the Government of Andorra ([official bulletin](#)). Andorra is part of the European Higher Education Area (EHEA) since 2003. The EHEA is an initiative promoted by the European Union that aims to organize the international training framework and harmonize the higher education systems of the member countries of this space. The project promotes common values, the implementation of collaborative tools and strengthening its quality assurance mechanisms to enhance collaboration and mobility among students, researchers and academics.

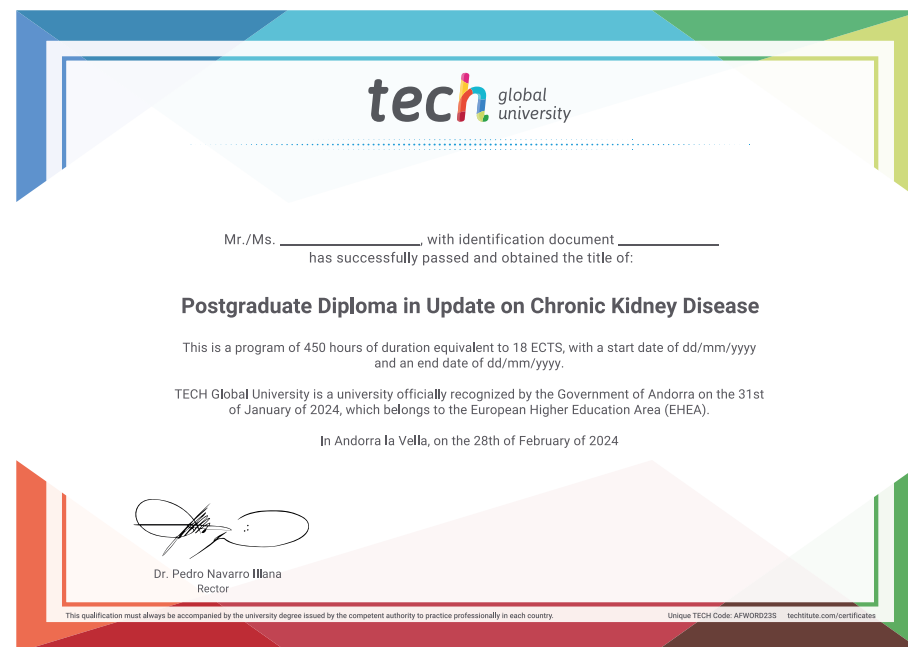
This **TECH Global University** title is a European program of continuing education and professional updating that guarantees the acquisition of competencies in its area of knowledge, providing a high curricular value to the student who completes the program.

Title: **Postgraduate Diploma in Update on Chronic Kidney Disease**

Modality: **online**

Duration: **6 months**

Accreditation: **18 ECTS**





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