

# Professional Master's Degree Nephrology and Dialysis Nursing





## Professional Master's Degree

### Nephrology and Dialysis Nursing

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

Website: [www.techtute.com/us/nursing/professional-master-degree/master-nephrology-dialysis-nursing](http://www.techtute.com/us/nursing/professional-master-degree/master-nephrology-dialysis-nursing)

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# 01

# Introduction

Various advances in the approach to renal diseases, renal clearance techniques and renal transplants have established an unprecedented framework of action for specialized healthcare professionals in this field. From a nursing point of view, it is extremely important for the nurse to be up to date and update their knowledge on all these issues. For this reason, TECH has developed a complete university program that covers the most recent scientific principles and developments in Nephrology and Dialysis Nursing, compiled in a convenient online format that adapts to the needs and responsibilities of the nurse.





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*Improve your knowledge in Nephrology and Dialysis Nursing through this program, where you will find the best didactic material with real clinical cases. Learn about the latest advances in the specialty to be able to provide excellent medical care"*

The program is designed to provide online learning equivalent to 1500 hours of study. All knowledge is presented through high-quality multimedia content, analysis of clinical cases prepared by experts, classes, and video techniques that allow the exchange of knowledge and experience, maintain and update the skill level of its members, create protocols for action and disseminate the most important developments in the specialty. With this online program, students can organize their time and pace of learning, adapting it to their schedules, in addition to being able to access the contents from any computer or mobile device.

The aim of this course is to enrich, renew and enhance professional learning as well as update knowledge of the latest techniques and procedures that a chronic renal patient requires.

We are committed to educating and bringing up to date the ideas and concepts used in nursing. These are based on the best available evidence as pillars of utmost importance for the improvement of the nursing care that we provide to our patients on a daily basis. Professionals must receive appropriate education and information from healthcare institutions as an integral part of their professional careers, if they are to improve the quality of care and provide excellence as the main aim of their care. But we must not forget that the nursing professionals themselves have an intrinsic responsibility and personal involvement to ensure that their knowledge of renal replacement care and techniques is kept up to date.

This **Professional Master's Degree in Nephrology and Dialysis Nursing** contains the most complete and up-to-date program on the market. Its most notable features are:

- ♦ More than 75 clinical cases presented by experts in Nephrology and Dialysis Nursing
- ♦ 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
- ♦ The latest information on care and intervention in Nephrology and Dialysis Nursing
- ♦ Practical exercises where the self-evaluation process can be carried out to improve learning
- ♦ Algorithm-based interactive learning system for decision-making in the situations that are presented to the student
- ♦ With special emphasis on evidence-based nursing and research methodologies in Nephrology and Dialysis Nursing
- ♦ All of this will be complemented by 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



*Update your knowledge through this Professional Master's Degree in Nephrology and Dialysis Nursing"*

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*This Professional Master's Degree may be the best investment you can make when selecting an up-to-date programme for two reasons: in addition to updating your knowledge in Nephrology and Dialysis Nursing, you will obtain a qualification from TECH Technological University”*

The teaching staff of this program includes professionals from the industry, who contribute the experience of their work to this program, in addition to recognized specialists from reference 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 learning 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 throughout the program. For this purpose, the student will be assisted by an innovative interactive video system created by renowned and experienced experts.

*Increase your decision-making confidence by updating your knowledge through this Professional Master's Degree.*

*Take the opportunity to learn about the latest advances in Nephrology and Dialysis Nursing and improve your patient care.*



# 02 Objectives

The Professional Master's Degree in Nephrology and Dialysis Nursing is focused on providing further education for nurses who look after patients with all kinds of kidney pathologies.







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*This Professional Master's Degree is designed to help you update your knowledge in Nephrology and Dialysis Nursing, with the use of the latest educational technology, to contribute with quality and safety to decision-making, diagnosis, treatment, and patient support"*



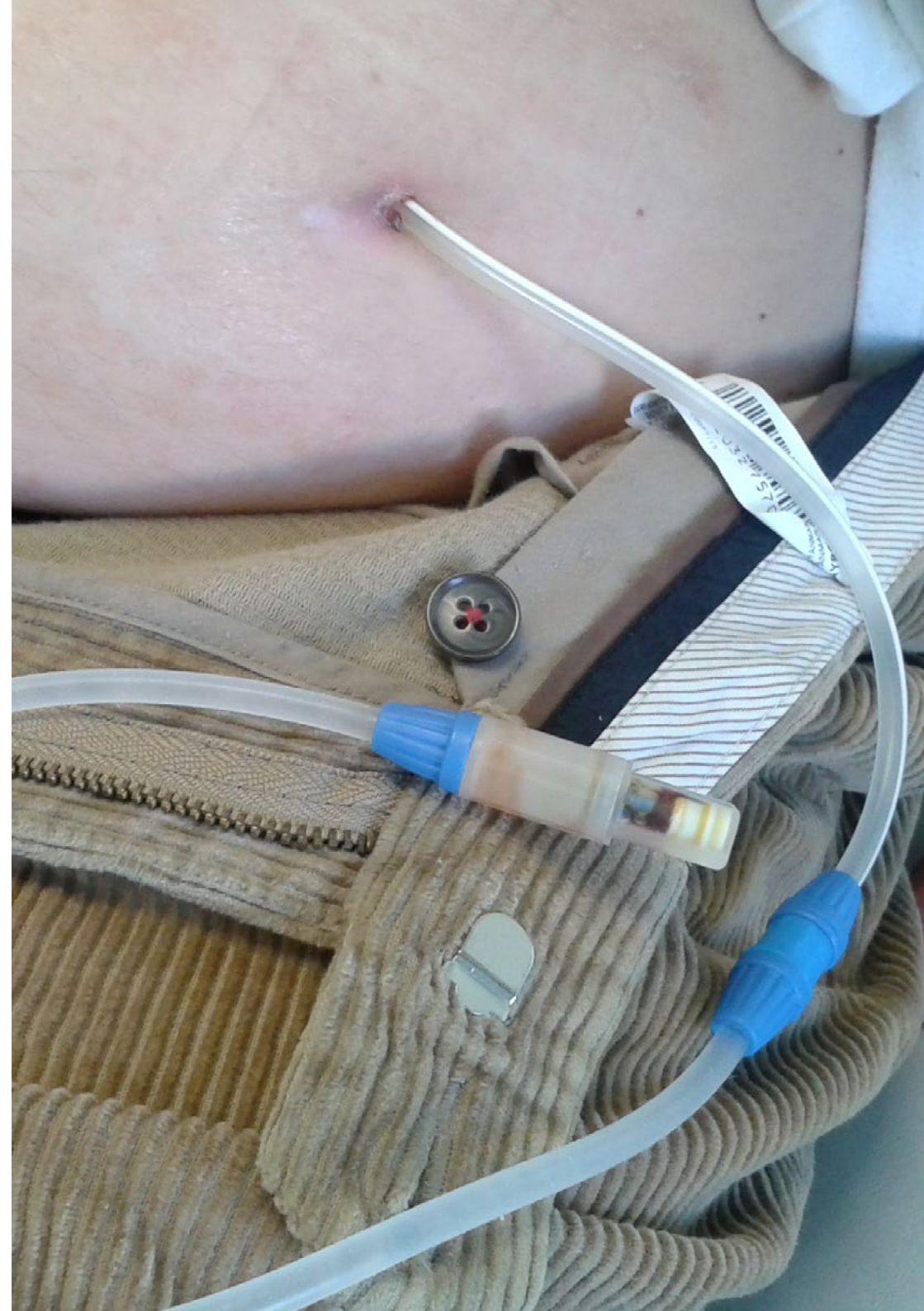
## General Objectives

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- ◆ Revise the most common procedures, techniques and care methods in routine clinical practice when dealing with patients with chronic kidney disease
- ◆ Optimize the quality and care of dialysis patients by providing more highly qualified healthcare professionals
- ◆ Develop knowledge and skills for the comprehensive approach and management of dialysis patients



*Make the most of this opportunity and take the step to get up to date on the latest developments in nephrology and dialysis nursing”*





## Specific Objectives

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### Module 1. Advanced in Kidney Disease

- ♦ Acquire basic knowledge on fundamental aspects of diagnosis, etiology, pathophysiology, and prevention of renal disease
- ♦ Identify the risk factors of kidney disease and its different stages
- ♦ Identify signs and symptoms that indicate pathology of renal origin
- ♦ Gain up-to-date knowledge of the different examination methods in Nephrology
- ♦ Expanding knowledge in the promotion of self-care
- ♦ Acquire knowledge for the management of the renal patient in the emergency department
- ♦ Know how renal failure affects the different stages of the drug

### Module 2. Pre-Dialysis

- ♦ Acquire the necessary knowledge to guarantee quality care of a patient during the Predialysis program
- ♦ Train and educate students in the knowledge of the different techniques of renal replacement therapy
- ♦ Gain up-to-date knowledge of the care required by the patient in a pre-dialysis program
- ♦ Describe the importance of education in the management of this disease and self-care

### Module 3. Renal Function Replacement Therapy: Hemodialysis

- ♦ Develop the nursing professionals' skills and knowledge for the comprehensive approach and treatment of the patient in a hemodialysis program
- ♦ Provide the essential fundamentals and the latest theoretical and practical advances to any professional who needs or decides to start learning about hemodialysis or who, being already in it, wants to update their knowledge
- ♦ Gain up-to-date knowledge of the quality and efficiency of the new hemodialysis technologies

### Module 4. Up-to-date Information on Other Techniques for Extranrenal Depuration in Hospitals

- ♦ Acquire knowledge of the different extrarenal depuration techniques
- ♦ Know the different parameters of efficacy, dosage, water balance of treatment in each technique
- ♦ Gain up-to-date knowledge of the care required by the patient in a hemodialysis program
- ♦ Update knowledge that allows the student to distinguish the different types of vascular accesses and to know the management and care of each one of them
- ♦ Gain up-to-date knowledge of the strategies for patients at high risk of bleeding
- ♦ Describe the different types of coagulation in a hemodialysis session as well the latest developments for the control and care of chronic renal patients
- ♦ Update knowledge and advances in the different hospital-based renal replacement therapy techniques

### Module 5. Pediatric Hemodialysis

- ♦ Acquire knowledge of how to properly manage different extrarenal pediatric techniques
- ♦ Know the general nursing care in the different techniques of extrarenal depuration
- ♦ Provide the essential foundations and the latest theoretical and practical advances to all professionals who need it, who decide to start learning about hemodialysis, or who are already in this field and want to update their knowledge
- ♦ Gain up-to-date knowledge on the care and management of pediatric patients in hemodialysis
- ♦ Acquire skills in the comprehensive management of a pediatric patient on dialysis

### Module 6. Peritoneal Dialysis

- ♦ Develop in nursing professionals the set of knowledge and skill competencies for the comprehensive approach and management of the patient in the Peritoneal Dialysis Program
- ♦ Provide the essential fundamentals and the latest theoretical and practical advances to any professional who needs or decides to start learning about Peritoneal Dialysis or who, being already in it, wants to update their knowledge
- ♦ Update knowledge in the care, approach and management of the patient in Peritoneal Dialysis program

### Module 7. Comprehensive Care: The Well-Being of the Chronic Renal Patient

- ♦ Identify the most common psychological problems in renal patients and resolve them in an appropriate way
- ♦ Understand the importance of good communication between doctors and patients as well as between the healthcare team and family members as an important support resource in nephrology
- ♦ Gain up-to-date knowledge of the psychosocial care needed by the chronic renal patient
- ♦ Recognise the different treatments that encourage the well-being of the chronic renal patient
- ♦ Acquire skills in care, health education, communication strategies and patient relations

### Module 8. Nursing Process Involved in Dealing with the Chronic Renal Patient

#### NANDA, NIC NOC

- ♦ Know the nursing procedure involved in dealing with a chronic renal patient: NANDA, NIC, NOC
- ♦ Develop skills in the management of the nursing methodology for caring for a chronic renal patient
- ♦ Gain up-to-date knowledge of the most common types of nursing diagnoses in chronic renal pathology
- ♦ Acquire up-to-date knowledge of the different nursing interventions involved in the nursing procedures of Chronic Kidney Disease

### Module 9. Renal Transplant

Know the different techniques for removal of organs from a donor

- ♦ Know how to manage and approach a kidney transplant patient
- ♦ Gain up-to-date knowledge of the diagnostic aspects of death
- ♦ Know the diagnostic tests and maintenance of the cadaveric donor
- ♦ Gain skills in donor interviewing
- ♦ Gain up-to-date knowledge of the nursing care of a transplant recipient
- ♦ Acquire skills in the approach and management of complications in the transplant recipient
- ♦ Know the symptoms of kidney rejection and now how to confront the complications
- ♦ Develop communication skills among healthcare professionals, CKD patients and their families in advance planning and decision making

### Module 10. Palliative Care of Chronic Renal Patients

- ♦ Integrate the Palliative Care model into the treatment of renal patients at the end of life, during the dying process and in bereavement
- ♦ Analyze clinical situations involving ethical challenges
- ♦ Incorporate conservative treatment as a non-dialytic therapeutic option in advanced CKD
- ♦ Propose action plans for the improvement of continuous renal care
- ♦ Know the referrals to specialized units in Palliative Care and bereavement support
- ♦ Update knowledge on clinical, ethical and legal aspects of dialysis initiation and withdrawal
- ♦ Update knowledge in the control and management of pain in chronic renal patients requiring palliative care



### **Module 11. Use of ICT in Chronic Renal Patients**

- ◆ Gain skills in the use of new technologies in caring for a chronic renal patient
- ◆ Describe the different digital didactic resources that we can recommend to a chronic renal patient
- ◆ Acquire skills in the use of new technologies applied to chronic renal patients
- ◆ Develop competencies and skills to empower the chronic renal patient
- ◆ Know the current status and benefits of the use of ICT in the Chronic Kidney Disease procedures

### **Module 12. Research in Renal Patient Care**

- ◆ Understand and manage the research process in the field of healthcare and renal patients
- ◆ Gain up-to-date knowledge of the Nursing Research design
- ◆ Acquire skills in the different quantitative and qualitative research techniques
- ◆ Describe the different methodologies in care research
- ◆ Broaden knowledge of qualitative research
- ◆ Know the ICT resources used for care research in renal patients

# 03 Skills

After passing the assessments on the Professional Master's Degree in Nephrology and Dialysis Nursing, the nurse will have acquired the necessary professional skills for quality, up-to-date practice based on the most recent scientific evidence.





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*With this program you will be able to master the new therapeutic procedures and apply the best care in nephrology and dialysis nursing”*

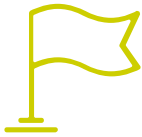


## General Skills

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- ♦ Critical and self-critical capacity, by making judgments based on criteria, given knowledge or personal reflections
- ♦ Acquire the ability to adapt to new medical and emergency situations with patients in dialysis treatment
- ♦ Identify possible new problems or complication that are presented in patients during treatment and have the skills to solve any problems
- ♦ Work as a team in nursing by identifying the patient's role as a priority
- ♦ Development the ability to work in an interdisciplinary team
- ♦ Adapt skills to communicate with non-experts and let them know about the patient's treatment process
- ♦ Develop a proactive attitude towards continuous improvement and evaluation of services in the face of new challenges and demands of the health of the population
- ♦ Apply acquired knowledge and skills creatively and flexibly to new situations or broader or multidisciplinary contexts
- ♦ Ability to interrelate information with other subjects and concepts
- ♦ Develop learning skills that allow them to continue studying and developing their career in a self-directed or autonomous manner
- ♦ Know how to act when faced with complications that can rise in patients who are connected to the hemodialysis machine
- ♦ Describe and use new extrarenal depuration techniques
- ♦ Perform the necessary techniques and nursing care procedures, establishing a therapeutic relationship with renal patients and their families
- ♦ Deal with patients at high risk of bleeding in hemodialysis
- ♦ Provide comprehensive care to a pediatric renal patient
- ♦ Manage the different pediatric depuration techniques
- ♦ Provide the comprehensive care of a renal patient in a peritoneal dialysis program
- ♦ Know how to use the different equipment in peritoneal dialysis
- ♦ Know how to identify the most common psychological problems in renal patients and know how to resolve them in an appropriate way
- ♦ Know how to build a relationship with and communicate with a renal patient and their carers
- ♦ Know how to use nursing methodology to deal with a chronic renal patient
- ♦ Describe the phases in the kidney donation and transplant process
- ♦ Care for a transplant recipient
- ♦ Use the Palliative Care model into the treatment of renal patients at the end of life, during the dying process and in bereavement
- ♦ Incorporate conservative treatment as a non-dialysis treatment option in advanced CKD





## Specific Skills

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- ♦ Describe the fundamental aspects of diagnosis, etiology, pathophysiology and prevention of kidney disease
- ♦ Identify the risk factors of kidney disease and its different stages
- ♦ Be able to differentiate between acute renal failure and chronic renal failure and to propose the most appropriate nursing care for the type of pathology diagnosed
- ♦ Gain up-to-date knowledge of the different examination methods in Nephrology
- ♦ Know how to promote self-care in renal patients at all stages
- ♦ Deal with a renal patient who arrives in the emergency department
- ♦ Describe the different renal replacement therapy techniques
- ♦ Provide the care required by the patient in a pre-dialysis program
- ♦ Provide the comprehensive care of a patient in a hemodialysis program
- ♦ Know how to manage the different extrarenal deputation techniques
- ♦ Describe the different parameters of efficacy, dosage and water balance of treatment in each technique
- ♦ Identify the most prevalent nutritional problems in nephrology and select the appropriate diet recommendations in each of the stages of kidney disease
- ♦ Understand the different types of vascular access and know the way to manage and care for each one of them
- ♦ Know how to identify when a chronic renal patient needs palliative care and direct them towards the different specialist units in Palliative Care and bereavement support
- ♦ Use web resources and ICT for personal and professional use
- ♦ Learn how to handle the different methodologies of research in care
- ♦ Know how to use different techniques to carry out your own research projects, develop a care plan or create a guide to clinical practice related to renal pathology
- ♦ Possess the ability to interpret research results from qualitative studies and evaluate their evidence levels
- ♦ Learn the use of different ICT techniques currently used in Health Sciences research
- ♦ Conduct a critical and in-depth study on a topic of scientific interest in the field of intensive care
- ♦ Communicate result findings after having analyzed, evaluated, and synthesized the data
- ♦ Identify the most important databases in the Health Sciences in order to perform adequate and reliable searches
- ♦ Describe the process of critical reading of scientific publications
- ♦ Write material to be published or presented at conferences

04

# Course Management

The program's teaching staff includes leading specialists in Nephrology and Dialysis Nursing and other related areas, who contribute their years of work experience to this program. Additionally, other recognized specialists participate in its design and preparation, which means that the program is developed in an interdisciplinary manner.



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*Learn the latest advances in procedures  
in nephrology and dialysis nursing from  
leading professionals”*

## Management



### Ms. Molina Fuillerat, Ruth

- ◆ Diploma in Nursing from the University of Cadiz, with extensive experience in Nephrology Services: Dialysis (Doctor Negrin Hospital (Las Palmas de Gran Canaria) Torrecárdenas Hospital (Almería) and Virgen de las Nieves Hospital and San Cecilio Hospital (Granada)) Currently working in the hemodialysis unit at Campus de la Salud Hospital (Granada) Co-author of the health application "Dialysis 24h"
- ◆ 1er. 1st prize Hinnovar de Novartis, 2014 edition, Hospital Management Category
- ◆ Accésit Professor Barea Award 2015 "Effect of a support tool on adherence to treatment, anxiety and quality of life of dialysis patients"
- ◆ Award for the isysCore Foundation, naming Dialysis 24h as the second best app in Spain
- ◆ Bandera de Andalucía 2015 for the commitment, dedication and devotion as a nurse in the Dialysis 24h app
- ◆ Albert Jovell Award 2016 Accésit to Diálisis 24h app for "Best initiative that improves patient health outcomes, developed by healthcare professionals, individually or as a team"

## Professors

### Aguilar Amores, Manuel Salvador

- ◆ Diploma in Nursing
- ◆ Degree in Social and Cultural Anthropology
- ◆ Specialist in Dialysis Product Applications and responsible for the training of healthcare personnel in the handling of hospital dialysis machines, therapeutic systems, convective techniques and home hemodialysis at Fresenius Medical Care España S.L.

### Arenas Bonilla, Manuel Fernando

- ◆ Diploma in Nursing
- ◆ Nurse in Hemodialysis Services. Almeria, Spain

### Ms. Bravo Bazán, Marina

- ◆ Diploma in Nursing
- ◆ Nurse of the Nephrology CMU, Hemodialysis Service, Virgen de Las Nieves Hospital Granada, Spain

**Ms. Cruz Gómez, Sandra**

- ♦ Diploma in Nursing
- ♦ Operating Room Nurse, Santa Ana Motril Hospital Granada, Spain

**Ms. Fraile Bravo, Mercedes**

- ♦ Diploma in Nursing
- ♦ Degree in Social and Cultural Anthropology
- ♦ PhD in Nursing
- ♦ Associate Professor at University of Extremadura
- ♦ Care Coordinator
- ♦ Extremadura Health Service

**Ms. Frasquet Morant, Julia**

- ♦ Diploma in Nursing
- ♦ Nurse in the Intensive Care Unit of the Dr. Negrín University Hospital of Valencia Las Palmas de Gran Canaria, Spain

**Ms. Gómez Reina, Encarnación**

- ♦ Degree in Psychology
- ♦ Specialist in Clinical Psychology
- ♦ Palliative Care Unit, Tomillar Hospital Sevilla, España

**Ms. González Lobo, María Ángeles**

- ♦ Diploma in Nursing
- ♦ Specialist Nurse in Surgery and Dialysis
- ♦ Member of the Organ Transplant and Kidney Implant Team in Granada, Virgen de Las Nieves Hospital Granada, Spain

**Mr. Granados Camacho, Sergio**

- ♦ Diploma in Nursing
- ♦ Nurse in the the Hemodialysis and Chronic Diseases Unit
- ♦ Member of the kidney, kidney-pancreas transplant protocol team, Regional University Hospital Malaga, Spain

**Guisado Oliva, José**

- ♦ Diploma in Nursing
- ♦ Hemodialysis Unit UGC Nephrology, Campus de la Salud Hospital Granada, Spain

**Dr. Gutiérrez Vilchez, Elena**

- ♦ Head of Pediatric Hemodialysis Department, Carlos Haya Hospital Malaga, Spain
- ♦ Specialist in Nephrology
- ♦ Degree in Medicine and Surgery

**Ms. Laguna Fernández, Clara**

- ♦ Diploma in Nursing, Carlos Haya Hospital Malaga, Spain

**Dr. López-González Gila, Juan de Dios**

- ♦ Resident in Nephrology, Virgen de Las Nieves Hospital, Granada
- ♦ Degree in Medicine and Surgery

**Ms. Mata Ortega, Olga**

- ♦ Diploma in Nursing, Virgen de Las Nieves Hospital Granada, Spain
- ♦ Regional Manager of Hemodynamic Monitoring and Product Launch, Vygon

**Dr. Morales García, Ana Isabel**

- ◆ Degree in Medicine and Surgery
- ◆ Specialist in Nephrology, Virgen Doctor Las Nieves Hospital Granada, Spain

**Ms. Muñoz Becerra, Mercedes**

- ◆ Diploma in Nursing
- ◆ Nurse and Care Coordinator of Hemodialysis Service, Campus de la Salud Hospital Granada, Spain

**Ms. Nieto Poyatos, Rosa María**

- ◆ Diploma in Nursing
- ◆ Hemodialysis Unit UGC Nephrology, Campus de la Salud Hospital Granada, Spain

**Dr. Palomares Bayo, Magdalena**

- ◆ Degree in Medicine and Surgery
- ◆ Specialist in Nephrology
- ◆ Head of the hemodialysis unit at Campus de la Salud Hospital Granada, Spain

**Ms. Pérez Jiménez, María Teresa**

- ◆ Diploma in Nursing
- ◆ Nurse in the Child and Adolescent Psychiatric Unit, Son Espases University Hospital Mallorca, Spain

**Ms. Rebollo Rubi, Ana**

- ◆ Diploma in Nursing
- ◆ Nurse in Carlos Haya Hospital Malaga, Spain





**Ms. Sánchez García, Belén**

- ◆ Diploma in Nursing
- ◆ Nurse in Carlos Haya Hospital Malaga, Spain

**Ms. Torres Colomera, Inmaculada**

- ◆ Diploma in Nursing
- ◆ Nurse of the Nephrology CMU, Hemodialysis Service
- ◆ Head Nurse of the Peritoneal Dialysis Unit, Torrecárdenas Hospital, Almeria, Spain



*The leading professionals in the field have come together to offer you the most comprehensive knowledge in this field, so that you can develop with total guarantees of success".*

05

# Structure and Content

The structure of the contents has been designed by a team of professionals from the best hospitals and universities in the country, who are aware of the relevance of up-to-date education to be able to intervene in the prevention, care, and treatment of renal pathology, and who are committed to quality teaching through new educational technologies.







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*This Professional Master's Degree  
in Nephrology and Dialysis Nursing  
contains the most complete and  
up-to-date program on the market”*

## Module 1. Advanced in Kidney Disease

- 1.1. Latest Information on Renal Disease
  - 1.1.1. Kidney Structure and Function
  - 1.1.2. Uremic Toxins
  - 1.1.3. Hydroelectrolyte Balance and Acid-Base Balance
  - 1.1.4. Hydration Disorders
  - 1.1.5. Acid-base Balance Disorders: Acidosis, Alkalosis
  - 1.1.6. Potassium Disorders: Hyperkalemia, Hypokalemia
  - 1.1.7. Conceptual Basis of Renal Pathology
  - 1.1.8. General Aspects in Nursing Care of Patients with Renal Pathology
- 1.2. Prevention of Renal Failure Advancing
  - 1.2.1. Definition and Risk Factors of CKD
  - 1.2.2. Evaluation, Diagnosis and Stratification
  - 1.2.3. Diagnosis and Management of Proteinuria
  - 1.2.4. Hygiene and Medication Management of Hypertensive Patients
  - 1.2.5. Strategies to Promote Self-Care
  - 1.2.6. Comorbidity Management
  - 1.2.7. Prevention and Progression of CKD in a Diabetic Patient
- 1.3. Renal Pathologies
  - 1.3.1. Urinary Function Disorders: Proteinuria, Hematuria, Azotemia, Oliguria
  - 1.3.2. Nephritis
  - 1.3.3. Nephrotic Syndrome
  - 1.3.4. Urinary Infection
  - 1.3.5. Nephrolithiasis
  - 1.3.6. Hemolytic Uremic Syndrome and Thrombocytic Thrombocytopenic Purpura
  - 1.3.7. Primary Glomerulonephritis
  - 1.3.8. Nephropathies of Systemic Diseases
  - 1.3.9. Interstitial and Toxic Nephropathies
  - 1.3.10. Renal Vasculopathies
  - 1.3.11. Congenital and Hereditary Diseases
  - 1.3.12. Arterial Hypertension and Organ Repercussions



- 1.3.13. Diabetes and the Kidneys
- 1.3.14. Pregnancy and the Kidneys
- 1.3.15. Polycystic Kidney Disease
- 1.3.16. Types of Kidney Failure and the Associated Complications
- 1.3.17. General Aspects in Nursing Care of Patients with Renal Pathology
- 1.4. Methods of Examination in Nephrology
  - 1.4.1. Semiology and Physical Examination
  - 1.4.2. Inspection
  - 1.4.3. Palpitation
  - 1.4.4. Auscultation
  - 1.4.5. Imaging Techniques
  - 1.4.6. Intravenous Urography
  - 1.4.7. Renal Arteriography
  - 1.4.8. Ultrasound
  - 1.4.9. Gammagraphy
  - 1.4.10. Urine Study
  - 1.4.11. Urinary Sediment Analysis
  - 1.4.12. Evaluation of Renal Function: Urea, Creatinine and Clearance
  - 1.4.13. Osmolality and Functional Tests
  - 1.4.14. Renal Biopsy
  - 1.4.15. Protocol and Technique Procedure
  - 1.4.16. Renal Patient Management in Emergencies
- 1.5. Pharmacokinetics in Kidney Failure
  - 1.5.1. Absorption
  - 1.5.2. Distribution
  - 1.5.3. Metabolism
  - 1.5.4. Elimination
  - 1.5.5. Dosage Adjustment

## Module 2. Pre-Dialysis

- 2.1. Advanced Chronic Kidney Disease (ACKD) Consultation
  - 2.1.1. Pharmacological Treatment
  - 2.1.2. Nutrition in Predialysis Program and Self-Care Patients
  - 2.1.3. Treatment Choice for Kidney Replacement
  - 2.1.4. Assessment of Social, Family and Cultural Situation of the Patient
- 2.2. Role of Nurses in Decision-Making in Replacement Kidney Treatment
  - 2.2.1. Assessment of Possible Vascular Accesses
  - 2.2.2. Assessment of Availability of the Patient for Peritoneal Dialysis
  - 2.2.3. Importance of Carer on Decision-Making
  - 2.2.4. General and Specific Nursing Care in Pre-Dialysis

## Module 3. Renal Function Replacement Therapy: Hemodialysis

- 3.1. Hemodialysis
  - 3.1.1. History and Current Status
  - 3.1.2. Evolution
- 3.2. The Physiology of Hemodialysis
  - 3.2.1. Broadcast
  - 3.2.2. UF.
  - 3.2.3. Convection
  - 3.2.4. Convection
  - 3.2.5. Urea Kinetics
- 3.3. Dialysis Liquids
  - 3.3.1. Introduction
  - 3.3.2. Water Treatment
  - 3.3.3. Methods of Water Treatment
  - 3.3.4. Quality Control of Water
  - 3.3.5. The Water Treatment Plant. Types, Characteristics, Controls, Problems
- 3.4. Dialyzers
  - 3.4.1. Definition, Characteristics, Formats
  - 3.4.2. Types of Membranes
  - 3.4.3. Factors to Consider when Choosing a Dialyzer: Ideal Dialyzers

- 3.5. Indications of Hemodialysis
  - 3.5.1. Dialysis Dosis: Purification of Small, Medium and Large Molecules
  - 3.5.2. Preservation of Residual Renal Function
- 3.6. Dialysis Monitors
  - 3.6.1. Main Characteristics and Differences Between Different Types
  - 3.6.2. Preparation and Verification of the Material Needed
  - 3.6.3. Session Planning According to the Prescription: Composition and Temperature of Dialysis Liquids (DL)
    - 3.6.3.1. Sterility Conditions
    - 3.6.3.2. Adjustment of Connections of the Extracorporeal Circuit
    - 3.6.3.3. Ending the Session
  - 3.6.4. Monitor Management: Setting up, Priming, Connecting, Disconnecting and Disinfecting the Monitors
- 3.7. Quality / Efficacy of the Depuration Techniques
  - 3.7.1. Dialysis Dose KT or KT/V in Each Technique
  - 3.7.2. Water Balance
    - 3.7.2.1. Dry Weight
    - 3.7.2.2. Euvolemic Weight
    - 3.7.2.3. Bioimpedance Applications
- 3.8. High-flow Hemodialysis and Convective Techniques
  - 3.8.1. Definition
  - 3.8.2. Types
  - 3.8.3. Equipment Management
  - 3.8.4. Benefits of High-flow Hemodialysis and Convective Techniques
- 3.9. Anticoagulation in HD: Update
  - 3.9.1. The Clot. Coagulation Cascade
  - 3.9.2. Factors which Promote Clotting in HD
  - 3.9.3. Use of Anticoagulation in HD
    - 3.9.3.1. Measurement and Monitoring of Anticoagulation
  - 3.9.4. Anticoagulation with Heparin
    - 3.9.4.1. Unfractionated Heparin (UFH)
    - 3.9.4.2. Heparinization Types
    - 3.9.4.3. Low Molecular Weight Heparin (LMWH)
    - 3.9.4.4. Secondary Effects of Heparin
    - 3.9.4.5. UFH or LMWH?
  - 3.9.5. Influence of the Membrane and the HD Technique on Anticoagulation
  - 3.9.6. Strategies for Patients with High Risk of Bleeding
    - 3.9.6.1. HD without Heparin
    - 3.9.6.2. HD low dose of Heparin
    - 3.9.6.3. Regional Heparinization with Citrate
    - 3.9.6.4. Heparinization with Heparin and Protamine
    - 3.9.6.5. Citrate in the Dialysis Fluid
    - 3.9.6.6. Regional Anticoagulation with Prostacyclin
    - 3.9.6.7. Nafamostat Mesylate
  - 3.9.7. Other Methods of Clotting
  - 3.9.8. Antiaggregation and Anticoagulation in HD Patients
- 3.10. Organization of a Dialysis Unit
  - 3.10.1. General Objective
  - 3.10.2. Structure of the Unit
  - 3.10.3. Dialysis Room
  - 3.10.4. Organisation
  - 3.10.5. Patients
  - 3.10.6. Nursing Staff
  - 3.10.7. Procedures
    - 3.10.7.1. Preventative Medicine Controls
    - 3.10.7.2. Patient Documentation
    - 3.10.7.3. Analytical Controls
    - 3.10.7.4. Nursing Protocol for the Welcoming Patients with CKD
    - 3.10.7.5. Welcome Guide for Nursing Professionals in HD
    - 3.10.7.6. Latest Protocols Needed During the HD Session
- 3.11. Latest Information on Vascular Accesses fro HD
  - 3.11.1. Fistulas
    - 3.11.1.1. Native and Prosthetic Arteriovenous Fistulas. Most Common Locations
    - 3.11.1.2. Pre-surgical Assessment
    - 3.11.1.3. Surgical Technique
    - 3.11.1.4. Nursing Care. Postoperative Controls
    - 3.11.1.5. Nursing Care to Improve Fistula Development and Survival (FAVI)
    - 3.11.1.6. Home Self-Care of Arteriovenous Fistula



- 3.11.1.7. Home Care of an Extravasation of the Arteriovenous Fistula
- 3.11.1.8. Measures to Follow in Case of Hemorrhage
- 3.11.1.9. Puncture of the AVF. General Rules for Punctures
- 3.11.1.10. Pain in Punctures. Puncture Techniques. Special Considerations in the Puncture of Prosthetic AVF
- 3.11.1.11. Puncture Techniques: Unipuncture or Bipuncture. Buttonhole Technique
- 3.11.1.12. Self-Guided Vascular Cannulation (Peripheral and Central)
- 3.11.1.13. Control of Blood Recirculation in an Arteriovenous Fistula
- 3.11.1.14. Complications and Treatment
- 3.11.2. Catheters
  - 3.11.2.1. Types
  - 3.11.2.2. Surgical Technique
  - 3.11.2.3. Catheter Infections
  - 3.11.2.4. Treatment
  - 3.11.2.5. Catheter Care and Complications
- 3.12. General Care Procedures During the HD Session
  - 3.12.1. Monitoring of the Patient During the Sessions
    - 3.12.1.1. Medication in the Hemodialysis Session
    - 3.12.1.2. Nursing Records and Charts
    - 3.12.1.3. Nurse's Actions in the Face of Acute Complications in Hemodialysis Sessions
  - 3.12.2. Physical Complications
    - 3.12.2.1. Hypotension
    - 3.12.2.2. Blood Loss
    - 3.12.2.3. Cramps.
    - 3.12.2.4. Air Embolism
    - 3.12.2.5. Hypotension Causes. Evaluation Methods. Short and Long-Term Treatment. Dry Weight and Ideal Weight
    - 3.12.2.6. Hypertension
    - 3.12.2.7. Nausea and Vomiting
    - 3.12.2.8. Blood Loss
    - 3.12.2.9. Cramps
    - 3.12.2.10. Air Embolism

- 3.12.2.11. Allergic Reaction to Drugs and Dialysis Material
- 3.12.2.12. Haemolysis
- 3.12.2.13. Precordial Pain
- 3.12.2.14. Seizures
- 3.12.2.15. Headaches: Most Common Causes and Treatment
- 3.12.3. Mechanisms
  - 3.12.3.1. Filter Breakage
  - 3.12.3.2. Partial and/or Total Coagulation of the Circuit
  - 3.12.3.3. Blood Extravasation
  - 3.12.3.4. Needle Removal
  - 3.12.3.5. Monitor Malfunction
- 3.12.4. Chronic Complications of HD
  - 3.12.4.1. Phosphocalcium Metabolism
  - 3.12.4.2. Sexual and Reproductive Dysfunction
  - 3.12.4.3. Left Ventricular Hypertrophy
  - 3.12.4.4. Uremic Pericarditis
  - 3.12.4.5. Uremic Polyneuropathy
  - 3.12.4.6. Anemia in Hemodialysis
- 3.13. Health Education for the Chronic Renal Patient
  - 3.13.1. Promotion of Healthy Lifestyle Habits
  - 3.13.2. Appropriate Nutrition
  - 3.13.3. Fluids and Ions Management
  - 3.13.4. Quality of Life for Dialysis Patients
- 3.14. Home-based Hemodialysis
  - 3.14.1. Definition
  - 3.14.2. Monitor Management
  - 3.14.3. Training the Patient for Homebased Hemodialysis
- 3.15. Managing the Infectious Pathology in Hemodialysis
  - 3.15.1. Hepatitis C Virus
    - 3.15.1.1. Latest Information on the Treatment of Hepatitis in Patients with CKD
    - 3.15.1.2. Hepatitis B Virus
    - 3.15.1.3. Human Immunodeficiency Virus (HIV)

## Module 4. Up-to-date Information on Other Techniques for Extranrenal Depuration in Hospitals

- 4.1. Continuous Hemodiafiltration
  - 4.1.1. Equipment Management and Care
- 4.2. Plasmapheresis
  - 4.2.1. Equipment Management and Care
- 4.3. Techniques Combined with Adsorption
  - 4.3.1. Hemoperfusion
    - 4.3.1.1. Equipment Management and Care
  - 4.3.2. Apheresis with Resin
    - 4.3.2.1. Types
    - 4.3.2.2. Equipment Management and Care

## Module 5. Pediatric Hemodialysis

- 5.1. Advances and Innovations in Pediatric Hemodialysis
  - 5.1.1. Indications and Contraindications
- 5.2. Pediatric Vascular Accesses
  - 5.2.1. Care and Assessment of Vascular Accesses
- 5.3. Pediatric Dialysis Equipment
  - 5.3.1. Peritoneal
  - 5.3.2. Hemodialysis
- 5.4. Modalities in Pediatric Dialysis
  - 5.4.1. Peritoneal
  - 5.4.2. Hemodialysis
- 5.5. Administration of Drugs During Pediatric Hemodialysis Sessions
- 5.6. Nursing in the Care of Children on Dialysis
  - 5.6.1. Complication Management in Hemodialysis Sessions
  - 5.6.2. Nursing Care of Pediatric Renal Patients

## Module 6. Peritoneal Dialysis

- 6.1. Update on Peritoneal Dialysis
- 6.2. Indications and Contraindications of Peritoneal Dialysis
  - 6.2.1. Indications
  - 6.2.2. Contraindications
- 6.3. Dialyzing Membrane
  - 6.3.1. Types
  - 6.3.2. Functions
  - 6.3.3. Features
- 6.4. Peritoneal Access
  - 6.4.1. Peritoneal Catheters
  - 6.4.2. Types
  - 6.4.3. Peritoneal Catheter Implantation
- 6.5. Nursing care
  - 6.5.1. Perioperative
  - 6.5.2. The Operating Room
  - 6.5.3. Post Surgery
- 6.6. Post-surgery Complications
  - 6.6.1. Postoperative Complication Management and Action
- 6.7. Complications in Peritoneal Dialysis
  - 6.7.1. Peritonitis
  - 6.7.2. Exit Wound Infections
  - 6.7.3. Leakage
  - 6.7.4. Hernias
    - 6.7.4.1. Diagnosis and Treatment
- 6.8. Advantage of Peritoneal Dialysis (PD)
  - 6.8.1. Types of Peritoneal Dialysis
- 6.9. Solutions for Dialysis
  - 6.9.1. Features
  - 6.9.2. Types
- 6.10. Catheter and Exit Wound Care
  - 6.10.1. Update on Catheter Care

- 6.11. Equipment Management
  - 6.11.1. Cyclor
  - 6.11.2. Manual Peritoneal Dialysis
- 6.12. Protocol for Teaching the Patient about PD
  - 6.12.1. Training and Teaching the Patient and their Carer
- 6.13. Protocol for Monitoring the Patient on PD
  - 6.13.1. Nurse House Visit
- 6.14. Administration of Drugs in PD
  - 6.14.1. Use, Dosage and Administration Routes

## Module 7. Comprehensive Care: The Wellbeing of the Chronic Renal Patient

- 7.1. Psychological Support for the Dialysis Patient
  - 7.1.1. Factors that Change the Response to the Disease
  - 7.1.2. Psychological Stages of the Renal Patient
  - 7.1.3. Psychological Adaptation Processes
  - 7.1.4. Most Common Psychological Problems in Renal Patients
  - 7.1.5. Hospitalization
  - 7.1.6. Fears of the Patient about the Disease
  - 7.1.7. Renal Patient Information
  - 7.1.8. Health Education for Patients and Their Family
  - 7.1.9. Support Sources for Renal Patients
  - 7.1.10. Psychosocial Aspects of the Renal Patient in the Nursing Care Process
  - 7.1.11. Meaning of the First Dialysis for the Renal Patient and Factors that Influence their Life
- 7.2. Interventions which Promote the Wellbeing of the Patient in the Dialysis
  - 7.2.1. Music Therapy
  - 7.2.2. Current State
  - 7.2.3. Scientific Evidence on Music Therapy
  - 7.2.4. Current Situation
  - 7.2.5. Physical Exercise in the Dialysis Room
  - 7.2.6. Current State
  - 7.2.7. Scientific Evidence
  - 7.2.8. Current Situation

## Module 8. Nursing Process Involved in Dealing with the Chronic Renal Patient NANDA, NIC NOC

- 8.1. Care Models
- 8.2. Nursing Process
- 8.3. The Language Used by Nurses
- 8.4. Care Plans for Renal Patients
  - 8.4.1. Hemodialysis Patient
  - 8.4.2. Peritoneal Dialysis Patient
  - 8.4.3. Renal Transplant Patient
  - 8.4.4. Renal Patient in Primary Attention
- 8.5. Records and Clinimetrics in the Care Model

## Module 9. Renal Transplant

- 9.1. Current Status in Transplantation
  - 9.1.1. Benefits
  - 9.1.2. Contraindications
- 9.2. Inclusion in Transplantation Waiting List
  - 9.2.1. General Aspects
  - 9.2.2. Requirements
- 9.3. Diagnostic Aspects of Death
  - 9.3.1. Diagnostic Tests
  - 9.3.2. Maintenance of Cadeveric Donor
- 9.4. Donor Interview
  - 9.4.1. Interview Sequence
  - 9.4.2. The Negative Family
  - 9.4.3. Causes and Strategies
- 9.5. Kidney Removal
  - 9.5.1. Surgical Procedure
- 9.6. Types of Transplantation
  - 9.6.1. Cephalic Death
  - 9.6.2. Asystole

- 9.6.3. Crusader
- 9.6.4. Samaritan
- 9.6.5. Living Donor Transplant
- 9.7. Transplant Operating Room Protocol
  - 9.7.1. Performance and Follow-up in the Operating Room
- 9.8. Nursing Care of Renal Transplantation Recipients
  - 9.8.1. Latest Information on the Specific Nursing Care Required by the Transplantation Recipient
- 9.9. Compication in Renal Transplantation
  - 9.9.1. Types
  - 9.9.2. Complication Management and Action
- 9.10. Medication
  - 9.10.1. Immunosuppressants
- 9.11. Symtoms of Rejection
  - 9.11.1. General Care

## Module 10. Palliative Care of Chronic Renal Patients

- 10.1. Current Status of Palliative Care of Renal Patients
- 10.2. Renal Support Care
  - 10.2.1. Pain Management for Renal Patients
  - 10.2.2. Symptom Control in Kidney Disease
- 10.3. Anticipated Wishes
- 10.4. Grief Management
  - 10.4.1. Communication Skills: Counselling
- 10.5. Referrals to Specialist Units in Palliative Care and Bereavement Support
- 10.6. Dialysis Withdrawal
  - 10.6.1. Clinical Aspects
  - 10.6.2. Ethics
  - 10.6.3. BORRAR





## Module 11. Use of ICT in Chronic Renal Patients

- 11.1. Use of Technology
  - 11.1.1. Use of Technology Applied to Health
- 11.2. Communication in the Digital Era
  - 11.2.1. Social Media
- 11.3. Active Patient
  - 11.3.1. Definition
  - 11.3.2. Features
  - 11.3.3. Empowerment
  - 11.3.4. Active Patient Initiatives
- 11.4. Digital Resources for Chronic Renal Patients
  - 11.4.1. Blogs
  - 11.4.2. Didactic Websites
  - 11.4.3. Health Apps

## Module 12. Research in Renal Patient Care

- 12.1. Research in Renal Patient
  - 12.1.1. Quantitative Research
  - 12.1.2. Qualitative Research
    - 12.1.2.1. Phases and Stages of Qualitative Research
    - 12.1.2.2. Qualitative Research Techniques
      - 12.1.2.2.1. Data Analysis
      - 12.1.2.2.2. Reporting
  - 12.1.3. Resources
  - 12.1.4. Know the ICT Resources Used for Care Research in Renal Patients

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 Nursing School we use the Case Method

In a given situation, what should a professional do? 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. Nurses learn better, faster, and more sustainably over time.

*With TECH, nurses can experience a learning methodology 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, in an attempt to recreate the real conditions in professional nursing 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. Nurses who follow this method not only grasp concepts, but also develop their mental capacity, by evaluating real situations and applying their knowledge.
2. The learning process has a clear focus on practical skills that allow the nursing professional to better integrate knowledge acquisition into the hospital setting or primary care.
3. Ideas and concepts are understood more efficiently, given that the example situations are based on real-life.
4. Students like to feel that the effort they put into their studies is worthwhile. This then translates into a greater interest in learning and more time dedicated to working on the course.



## Relearning Methodology

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

This university is the first in the world to combine case studies with a 100% online learning system based on repetition combining a minimum of 8 different elements in each lesson, which is a real revolution compared to the simple study and analysis of cases.



*The nurse 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 we have trained more than 175,000 nurses with unprecedented success in all specialities regardless of practical workload. Our pedagogical methodology is developed in a highly competitive environment, with a university student body with a strong socioeconomic profile and an average age of 43.5 years old.

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

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

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



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 really specific and precise.

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



### Nursing Techniques and Procedures on Video

We introduce you to the latest techniques, to the latest educational advances, 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 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 exclusive educational system for presenting multimedia content was awarded by Microsoft as a "European Success Story".



### Additional Reading

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







#### Expert-Led Case Studies and Case Analysis

Effective learning ought to be contextual. Therefore, TECH presents real cases in which the expert will guide students, focusing on and solving the different situations: a clear and direct way to achieve the highest degree of understanding.



#### Testing & Retesting

We periodically evaluate and re-evaluate students' knowledge throughout the program, through assessment and self-assessment activities and exercises, so that they can see how they are achieving their goals.



#### Classes

There is scientific evidence suggesting that observing third-party experts can be useful.

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 Nephrology and Dialysis Nursing guarantees students, in addition to the most rigorous and up-to-date education, access to a Professional Master's Degree issued by TECH Technological University.





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*Successfully complete this program  
and receive your university degree  
without travel or laborious paperwork”*

This **Professional Master's Degree in Nephrology and Dialysis Nursing** contains the most complete and up-to-date scientific program on the market.

After passing the assessments, the student will receive their corresponding **Professional Master's Degree** issued by **TECH Technological University** via tracked delivery\*.

The diploma 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 Nephrology and Dialysis Nursing**

Official N° of hours: **1,500 h.**



\*Apostille Convention. In the event that the student wishes to have their paper diploma issued with an apostille, TECH EDUCATION will make the necessary arrangements to obtain it, at an additional cost.

future  
health confidence people  
education information tutors  
guarantee accreditation teaching  
institutions technology learning  
community commitment  
personalized service innovation  
knowledge present quality  
development language  
virtual classroom



## Professional Master's Degree

Nephrology and Dialysis  
Nursing

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

# Professional Master's Degree Nephrology and Dialysis Nursing

