

Master's Degree

Urolithiasis





Master's Degree Urolithiasis

- » Modality: online
- » Duration: 12 months
- » Certificate: TECH Global University
- » Accreditation: 90 ECTS
- » Schedule: at your own pace
- » Exams: online

Website: www.techtitute.com/us/medicine/master-degree/master-urolithiasis

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01

Introduction to the Program

A recent report by the World Health Organization reveals that Urolithiasis represents a significant challenge in global medical care, affecting 20% of the population at some point in their lives. Despite advances in diagnosis and treatment, this disease continues to be a frequent cause of hospitalization and surgery. Faced with this reality, specialists need a comprehensive understanding of risk factors and the most effective therapeutic strategies. For this reason, TECH has created a pioneering university degree focused on the most modern strategies for tackling this disease, based on the latest scientific evidence. In addition, it is taught in a convenient 100% online format with no fixed timetable.





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Thanks to this 100% online Master's Degree, you will master the most innovative clinical procedures for the treatment of Urolithiasis and considerably increase the general well-being of patients”

Urolithiasis is an increasingly common condition in the adult population, with a growing prevalence in industrialized countries. In this sense, kidney stones not only cause intense pain, but also have long-term consequences on the quality of life of patients. With the arrival of Industry 4.0, the healthcare sector has been enriched by the incorporation of cutting-edge technological tools that allow for earlier and more accurate detection. An example of this is advanced imaging techniques such as Computed Tomography or minimally invasive therapies. However, to enjoy their benefits, doctors must have sophisticated technical skills to be able to handle these instruments with dexterity.

In this context, TECH presents an innovative Master's Degree in Urolithiasis. Designed by experts in the field, the educational program will delve into factors ranging from the generation of Renal Lithiasis or sophisticated techniques for clinical monitoring to the use of emerging technological tools such as robotic surgery. In addition, the teaching materials will offer graduates multiple strategies for carrying out minimally invasive procedures with guarantees of safety, quality and efficiency. In this way, physicians will acquire advanced skills to optimally identify and manage a wide range of urological conditions, using the latest technologies and clinical protocols based on the latest scientific evidence.

On the other hand, the university program acquires greater dynamism thanks to the multimedia pills and the wide variety of didactic resources offered by TECH (such as specialized readings, interactive summaries or case studies). Likewise, its groundbreaking Relearning methodology will allow doctors to update their knowledge much more effectively and in less time. This way, their knowledge updating process will be completely natural and progressive, so they won't have to invest long hours in studying.

This **Master's Degree in Urolithiasis** contains the most complete and up-to-date scientific program on the market. The most important features include:

- ♦ The development of case studies presented by experts in Urolithiasis
- ♦ The graphic, schematic and eminently practical contents with which it is conceived gather scientific and practical information on those disciplines that are indispensable for professional practice
- ♦ Practical exercises where the process of 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



*Master Retrograde Intrarenal Surgery
at the best online university in the
world according to Forbes"*

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You will delve into the benefits of Semi-Rigid Ureteroscopy, which include the reduction of Tissue Trauma and a decrease in recovery time for patients”

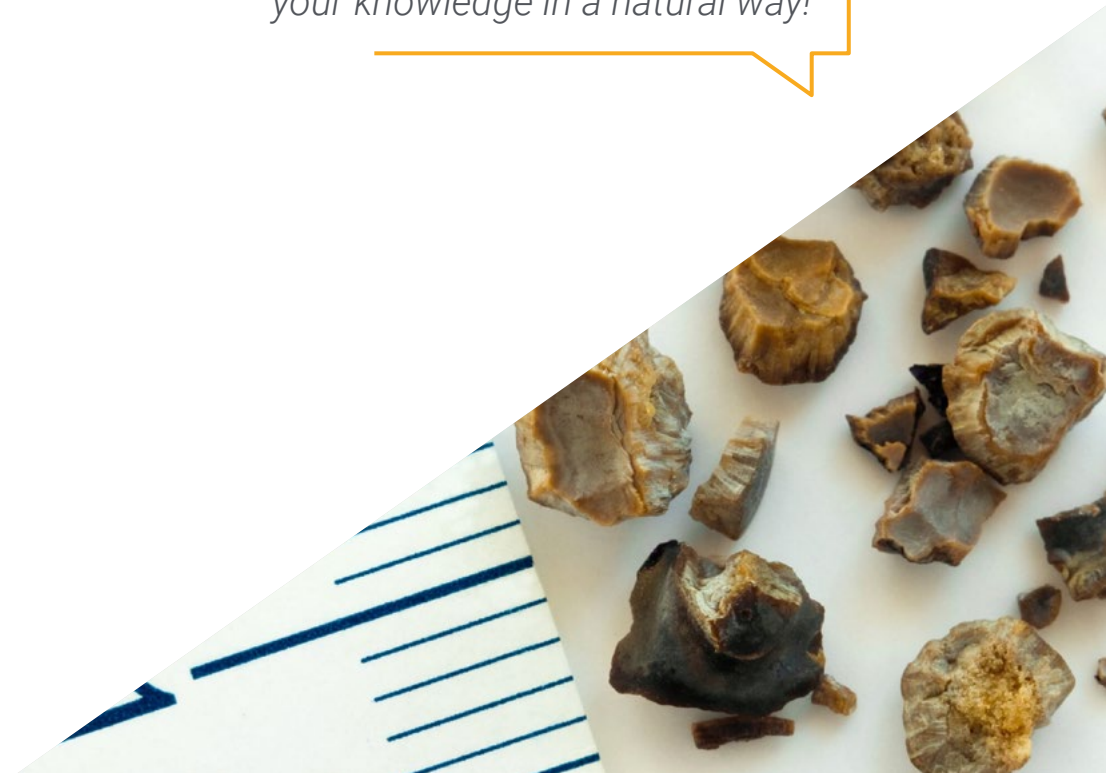
The program's teaching staff includes professionals from the sector who contribute their work experience to this specializing program, as well as renowned specialists from leading societies and prestigious universities.

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 prepare for 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 course. For this purpose, students will be assisted by an innovative interactive video system created by renowned and experienced experts.

You will master the latest therapeutic innovations for the treatment of Benign Prostatic Hyperplasia.

With the innovative Relearning system used by TECH, you will reduce the long hours of studying and memorization. You will update your knowledge in a natural way!



02

Why Study at TECH?

TECH is the world's largest online university. With an impressive catalog of more than 14,000 university programs available in 11 languages, it is positioned as a leader in employability, with a 99% job placement rate. In addition, it relies on an enormous faculty of more than 6,000 professors of the highest international renown.



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*Study at the world's largest online university
and guarantee your professional success.
The future starts at TECH”*

The world's best online university, according to FORBES

The prestigious Forbes magazine, specialized in business and finance, has highlighted TECH as "the best online university in the world" This is what they have recently stated in an article in their digital edition in which they echo the success story of this institution, "thanks to the academic offer it provides, the selection of its teaching staff, and an innovative learning method oriented to form the professionals of the future".

The best top international faculty

TECH's faculty is made up of more than 6,000 professors of the highest international prestige. Professors, researchers and top executives of multinational companies, including Isaiah Covington, performance coach of the Boston Celtics; Magda Romanska, principal investigator at Harvard MetaLAB; Ignacio Wistumba, chairman of the department of translational molecular pathology at MD Anderson Cancer Center; and D.W. Pine, creative director of TIME magazine, among others.

The world's largest online university

TECH is the world's largest online university. We are the largest educational institution, with the best and widest digital educational catalog, one hundred percent online and covering most areas of knowledge. We offer the largest selection of our own degrees and accredited online undergraduate and postgraduate degrees. In total, more than 14,000 university programs, in ten different languages, making us the largest educational institution in the world.



The most complete syllabuses on the university scene

TECH offers the most complete syllabuses on the university scene, with programs that cover fundamental concepts and, at the same time, the main scientific advances in their specific scientific areas. In addition, these programs are continuously updated to guarantee students the academic vanguard and the most demanded professional skills. and the most in-demand professional competencies. In this way, the university's qualifications provide its graduates with a significant advantage to propel their careers to success.

A unique learning method

TECH is the first university to use Relearning in all its programs. This is the best online learning methodology, accredited with international teaching quality certifications, provided by prestigious educational agencies. In addition, this innovative academic model is complemented by the "Case Method", thereby configuring a unique online teaching strategy. Innovative teaching resources are also implemented, including detailed videos, infographics and interactive summaries.

The official online university of the NBA

TECH is the official online university of the NBA. Thanks to our agreement with the biggest league in basketball, we offer our students exclusive university programs, as well as a wide variety of educational resources focused on the business of the league and other areas of the sports industry. Each program is made up of a uniquely designed syllabus and features exceptional guest hosts: professionals with a distinguished sports background who will offer their expertise on the most relevant topics.

Leaders in employability

TECH has become the leading university in employability. Ninety-nine percent of its students obtain jobs in the academic field they have studied within one year of completing any of the university's programs. A similar number achieve immediate career enhancement. All this thanks to a study methodology that bases its effectiveness on the acquisition of practical skills, which are absolutely necessary for professional development.



Google Premier Partner

The American technology giant has awarded TECH the Google Premier Partner badge. This award, which is only available to 3% of the world's companies, highlights the efficient, flexible and tailored experience that this university provides to students. The recognition not only accredits the maximum rigor, performance and investment in TECH's digital infrastructures, but also places this university as one of the world's leading technology companies.



The top-rated university by its students

Students have positioned TECH as the world's top-rated university on the main review websites, with a highest rating of 4.9 out of 5, obtained from more than 1,000 reviews. These results consolidate TECH as the benchmark university institution at an international level, reflecting the excellence and positive impact of its educational model.



03 Syllabus

The syllabus for this university degree offers a comprehensive journey from the anatomical and physiological foundations of the urinary system to advanced techniques for the treatment of kidney Stones. Physicians will delve into areas such as Robotic Surgery, Shock Wave Lithotripsy or the use of advanced imaging for accurate diagnosis. In addition, the teaching materials will address strategies for the prevention of recurrences and new drug therapies. With an innovative teaching methodology based on active learning and delivered 100% online, this university program guarantees continuous and flexible updating for healthcare professionals.





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You will delve into different techniques to carry out a comprehensive assessment of the clinical status of individuals and will be able to individualize therapies to maximize their adherence”

Module 1. Renal Lithiasis

- 1.1. Renal Lithiasis in the Context of History
 - 1.1.1. The Ancient Age
 - 1.1.2. From the Renaissance to the Present Day
 - 1.1.3. Lessons from History
- 1.2. Physicochemical Aspects Involved in the Formation of Kidney Stones: Crystal Nucleation
 - 1.2.1. Renal Lithiasis, Multifactorial Disease
 - 1.2.2. Crystal Formation in Liquids. Thermodynamic Aspects
 - 1.2.3. Crystal Formation in Liquids. Kinetic Aspects. Homogeneous Nucleation and Heterogeneous Nucleation
 - 1.2.3.1. Crystal Formation in Liquids. Homogeneous Nucleation and Metastable Zone
 - 1.2.3.2. Crystal Formation in Liquids. Heterogeneous Nucleation
- 1.3. Physicochemical Aspects Involved in the Formation of Kidney Stones: Crystal Growth, Aggregation, Effect of Additives
 - 1.3.1. Crystal Formation in Liquids. Crystal growth
 - 1.3.1.1. Secondary Aggregation
 - 1.3.1.2. Primary Aggregation
 - 1.3.2. Influence of Additives on Crystallization. Crystal Development Inhibitors
 - 1.3.3. Influence of Additives on Crystallization. Solubilization Enhancers
- 1.4. Classification of Kidney Stones and Main Associated Disorders
 - 1.4.1. Factors Involved in the Formation of Kidney Stones
 - 1.4.2. Classification of Kidney Stones. Structural Characteristics
 - 1.4.3. Etiological Factors Associated with Each Type of Kidney Stone
- 1.5. Calcium Oxalate Stones
 - 1.5.1. Papillary Calcium Oxalate Monohydrate Stones
 - 1.5.2. Non-Papillary or Cavity Calcium Oxalate Monohydrate Stones
 - 1.5.3. Calcium Oxalate Dihydrate Stones
- 1.6. Phosphate Stones
 - 1.6.1. Infectious Phosphate or Struvite (Ammonium Magnesium Phosphate) Stones
 - 1.6.2. Non-Infectious Phosphate Stones
 - 1.6.2.1. Hydroxyapatite Stones
 - 1.6.2.2. Brushite Stones
 - 1.6.3. Mixed Stones of Calcium Oxalate Dihydrate and Hydroxyapatite



- 1.7. Uric Acid, Urate and Cystine Stones and Uncommon Stones
 - 1.7.1. Uric Acid and Urate Stones
 - 1.7.2. Cystine Stones
 - 1.7.3. Other Uncommon Types of Stones
- 1.8. Diagnostic Fundamentals I: Study of Renal Stones
 - 1.8.1. Morpho-compositional Study
 - 1.8.2. Instrumental Techniques
 - 1.8.2.1. Stereomicroscope (Binocular Magnifying Glass)
 - 1.8.2.2. Scanning Electron Microscopy
 - 1.8.2.3. Infrared Spectroscopy
 - 1.8.3. Recommended Protocol for the Study of Kidney Stones
- 1.9. Diagnostic Fundamentals II: Urinary pH
 - 1.9.1. Urinary pH and the Formation of Solids in Urine
 - 1.9.2. Altered Urinary pH Values
 - 1.9.2.1. Urinary pH Values Below 5.5
 - 1.9.2.2. Urine pH Values Above 6.2
 - 1.9.3. Measurement of Urine pH
- 1.10. Aspects to Consider in the Assessment of the Lithiasic Patient
 - 1.10.1. Urine-Related Factors
 - 1.10.1.1. Assessment of the Risk of Crystallization in the Urine
 - 1.10.1.2. Urine Composition
 - 1.10.1.3. Urine Volume
 - 1.10.1.4. Urinary pH
 - 1.10.1.5. Urodynamic Factors
 - 1.10.1.6. Criteria for the Existence of Risk of Crystallization in Urine
 - 1.10.1.7. Other Tools for Assessing the Risk of Crystallization of Urine
 - 1.10.2. Selection of Urine Samples
 - 1.10.3. Urinary Infection

Module 2. Medical Screening of Patients with Renal Lithiasis

- 2.1. Metabolic Screening
 - 2.1.1. The Metabolic Screening
 - 2.1.2. How and When to Perform the Metabolic Screening
 - 2.1.3. Indications for the Metabolic Screening: Who Should Undergo the Screening
- 2.2. Classification of Patients at Risk of Urolithiasis: High-Risk Patients
 - 2.2.1. Intrinsic, Extrinsic and Favorable Factors
 - 2.2.2. Population at Risk
 - 2.2.3. Categories of Stone-Forming Patients
 - 2.2.3.1. Specific Risk Factors for Stone Formation
- 2.3. Medical Treatment of Idiopathic Hypercalciuria
 - 2.3.1. Assessment of the Patient with Idiopathic Hypercalciuria
 - 2.3.2. Dietary Treatment
 - 2.3.3. Drug Treatment: Thiazides
- 2.4. Primary and Secondary Hyperparathyroidism
 - 2.4.1. Pathophysiology of Primary and Secondary Hyperparathyroidism
 - 2.4.2. Differential Diagnosis of Hyperparathyroidism
 - 2.4.3. Clinical Management of Hyperparathyroidism in the Context of Urolithiasis
- 2.5. Primary Hyperoxaluria and Nephrocalcinosis
 - 2.5.1. Etiology
 - 2.5.2. Diagnostic Approach
 - 2.5.3. Treatment
- 2.6. Primary and Secondary Hyperoxaluria. Dietary and Enteral
 - 2.6.1. Etiology of Hyperoxalurias
 - 2.6.2. Diagnostic Approach to Hyperoxalurias
 - 2.6.3. Treatment of Hyperoxalurias
 - 2.6.4. Specific Treatments for Primary Hyperoxaluria
- 2.7. Hypocitraturia
 - 2.7.1. Pathophysiology and Causes of Hypocitraturia
 - 2.7.2. Relevance of Hypocitraturia in the Formation of Kidney Stones
 - 2.7.3. Assessment and Treatment of Hypocitraturia in Patients with Urolithiasis

- 2.8. Hyperuricosuria
 - 2.8.1. Pathophysiology and Causes of Uricosuria
 - 2.8.2. Impact of Uricosuria on the Formation of Kidney Stones
 - 2.8.3. Assessment and Management Strategies for Uricosuria
- 2.9. Renal Tubular Acidosis
 - 2.9.1. Types of Tubular Acidosis
 - 2.9.2. Etiology and Pathophysiology of Distal Renal Tubular Acidosis
 - 2.9.3. Diagnosis of Distal Renal Tubular Acidosis
 - 2.9.4. Treatment of Distal Renal Tubular Acidosis
- 2.10. Patient Dietary Management
 - 2.10.1. Patient Dietary Management
 - 2.10.2. Water Intake
 - 2.10.3. Dietary Treatment of the Main Alterations in Urinary Excretion
 - 2.10.3.1. Dietary Treatment of Hypercalciuria
 - 2.10.3.2. Dietary Treatment of Hyperoxaluria
 - 2.10.3.3. Dietary Treatment of Hyperuricosuria
 - 2.10.3.4. Dietary Treatment of Hypocitraturia
 - 2.10.4. Dietary Recommendations at the Extreme Ages of Life
 - 2.10.4.1. Dietary Recommendations for Children with Lithogenic Kidney Stones
 - 2.10.4.2. Dietary Recommendations for Elderly People with Lithogenic Kidney Stones

Module 3. Management and Outpatient Monitoring of Patients with Non-Calcium Kidney Stones

- 3.1. Uric Acid Stones
 - 3.1.1. Etiology and Pathophysiology
 - 3.1.2. Diagnosis
 - 3.1.3. Medical Treatment
- 3.2. Infectious Ammonium Phosphate and Magnesium Lithiasis
 - 3.2.1. Etiology and Pathophysiology
 - 3.2.2. Diagnosis
 - 3.2.3. Medical Treatment

- 3.3. Cystine Stones
 - 3.3.1. Etiology and Pathophysiology
 - 3.3.2. Diagnosis
 - 3.3.3. Medical Treatment
- 3.4. Other Lithiasis
 - 3.4.1. Types of Rare Lithiasis
 - 3.4.2. Etiopathogenesis of Rare Lithiasis
 - 3.4.3. Diagnosis and Treatment
- 3.5. Genetics in Urolithiasis
 - 3.5.1. Genetic Diseases Associated with Urinary Lithiasis
 - 3.5.2. Factors that Point to Monogenic Disease in a Patient with Urinary Lithiasis
 - 3.5.3. Treatment of Renal Lithiasis in Genetic Diseases
- 3.6. New Medical Treatments in Urolithiasis
 - 3.6.1. Innovative Therapies for the Prevention of Stone Formation
 - 3.6.2. Pharmacological Advances in the Treatment of Renal Lithiasis
 - 3.6.3. Integration of Emerging Treatments in Clinical Practice
- 3.7. Microbiota in Urolithiasis
 - 3.7.1. Pathophysiological Principles of Intestinal Microbiota
 - 3.7.2. Relation between Intestinal Microbiota and the Formation of Urolithiasis
 - 3.7.3. Possibility of Alteration of Intestinal Microbiota and its Impact on Urolithiasis
- 3.8. Artificial Intelligence and Urolithiasis
 - 3.8.1. Concepts and History of Artificial Intelligence Applied to Urolithiasis
 - 3.8.2. Types of Artificial Intelligence Applied to Urolithiasis
 - 3.8.3. Application of Artificial Intelligence in Urolithiasis
- 3.9. Ph Control in Urolithiasis: How To Do It, Recommendations
 - 3.9.1. Importance of pH in Urolithiasis
 - 3.9.2. Measuring Urine pH
 - 3.9.3. Recommendations for pH Control in Non-Calcium Urolithiasis
- 3.10. Structure and Coordination of a Urolithiasis Unit
 - 3.10.1. The Urolithiasis Unit
 - 3.10.2. Structure of a Lithotripsy Unit
 - 3.10.3. Staff Organization

Module 4. Clinical Presentation of Renal Lithiasis

- 4.1. Renal Physiology
 - 4.1.1. Renal Physiology
 - 4.1.2. Estimated Glomerular Filtration Rate
 - 4.1.3. Kidney Pathophysiology
- 4.2. Pathophysiology of Acute Obstruction
 - 4.2.1. Pathophysiology at the Cortical Level
 - 4.2.2. Pathophysiology at the Medullary Level
 - 4.2.3. Pathophysiology at the Renoureteral Level
- 4.3. Pathophysiology of Chronic Obstruction
 - 4.3.1. Pathophysiology at the Cortical Level
 - 4.3.2. Pathophysiology at the Medullary Level
 - 4.3.3. Pathophysiology at the Renoureteral Level
- 4.4. Imaging Studies in Renal Lithiasis
 - 4.4.1. Plain and Contrast Radiography
 - 4.4.2. Ultrasound, Magnetic Resonance Imaging, Computed Tomography
 - 4.4.3. Functional Tests: Renogram, Whitaker Test
- 4.5. Clinical Features, Diagnosis and Treatment of Uncomplicated Renal Colic
 - 4.5.1. Clinical Features of Uncomplicated Renal Colic
 - 4.5.2. Diagnosis
 - 4.5.3. Treatment
- 4.6. Treatment of Complicated Renal Colic
 - 4.6.1. Diagnosis
 - 4.6.2. Urinary Diversion
 - 4.6.3. Other Measures
- 4.7. Types of Double J Catheters
 - 4.7.1. Evolution Over Time of Double J Ureteral Catheters
 - 4.7.2. Indications, Complications and Adverse Effects
 - 4.7.3. New Designs of Ureteral Catheters. Biodegradable and Drug-Releasing

- 4.8. Renal Lithiasis, Infection and Sepsis
 - 4.8.1. Risk of Infection and Sepsis in Renal Lithiasis (Non-struvite)
 - 4.8.2. Diagnostic Techniques
 - 4.8.3. Recommendations for Management and Treatment
- 4.9. Patient Follow-up after Urinary Kidney Stone
 - 4.9.1. Epidemiology and Impact of Renal Colic
 - 4.9.2. Expulsive Treatment: Evidence and Opportunity Cost
 - 4.9.3. Patient Management in Special Situations
- 4.10. Clinical Guidelines Applied to Renal Colic
 - 4.10.1. European Guidelines
 - 4.10.2. American Guidelines
 - 4.10.3. Publications in PubMed

Module 5. Extracorporeal Shock Wave Lithotripsy. Transurethral Endoscopic Treatment of Kidney Stones

- 5.1. Extracorporeal Shock Wave Lithotripsy. Evolution Over Time
 - 5.1.1. Management of Lithiasis before Extracorporeal Shock Wave Lithotripsy
 - 5.1.2. Impact of Extracorporeal Shock Wave Lithotripsy
 - 5.1.3. Current Situation of Shock Wave Lithotripsy
- 5.2. Physical Principles and Types of Energy in Evolving Contaminated Urine Liquid
 - 5.2.1. Precursors of Extracorporeal Lithotripsy
 - 5.2.2. Electrohydraulic Generators
 - 5.2.3. Piezoelectric Generators
 - 5.2.4. Electromagnetic Generators
- 5.3. Indications and Contraindications of Extracorporeal Shock Wave Lithotripsy
 - 5.3.1. Contraindications of Extracorporeal Shock Wave Lithotripsy
 - 5.3.2. Characteristics of the Patient Candidate for Extracorporeal Shock Wave Lithotripsy
 - 5.3.3. Characteristics of the Lithiasis Candidate for Extracorporeal Shock Wave Lithotripsy

- 5.4. Results of Extracorporeal Shock Wave Lithotripsy
 - 5.4.1. Position of the Patient in Shock Wave Lithotripsy
 - 5.4.2. Release of Energy in Shock Wave Lithotripsy
 - 5.4.3. Tricks and Technical Details in Shock Wave Lithotripsy
- 5.5. Results of Extracorporeal Shock Wave Lithotripsy
 - 5.5.1. Results of Extracorporeal Shock Wave Lithotripsy in the Kidney
 - 5.5.2. Results of Extracorporeal Shock Wave Lithotripsy in the Ureter
 - 5.5.3. Results of Extracorporeal Shock Wave Lithotripsy in Children
- 5.6. Immediate Follow-up and Complications
 - 5.6.1. Assessment of Residual Lithiasis
 - 5.6.2. Analysis of Lithiasis: Prevention of the Formation of New Lithiasis
 - 5.6.3. Short- and Long-Term Complications of Extracorporeal Shock Wave Lithotripsy
- 5.7. Future of Extracorporeal Shock Wave Lithotripsy. Latest Developments
 - 5.7.1. Latest Developments in Extracorporeal Shock Wave Lithotripsy
 - 5.7.2. The Future of Extracorporeal Shock Wave Lithotripsy
 - 5.7.3. Key Aspects
- 5.8. Clinical Guidelines for Extracorporeal Lithotripsy
 - 5.8.1. Recommendations for the Performance of Extracorporeal Shock Wave Lithotripsy
 - 5.8.2. Extracorporeal Shock Wave Lithotripsy in the Treatment of Renal Lithiasis
 - 5.8.3. Extracorporeal Shock Wave Lithotripsy in the Treatment of Ureteral Lithiasis
- 5.9. Radiation Protection in Endourology
 - 5.9.1. Principles of Radiation Protection
 - 5.9.2. Radiation Exposure in Endourology in the Patient: Risks and Precautions
 - 5.9.3. Radiation Exposure in Endourology in the Urologist: Risks and Precautions
 - 5.9.4. Dose Reduction Strategies in Endourological Procedures
- 5.10. Urolithiasis and Hospital Management
 - 5.10.1. Hospital Management
 - 5.10.2. Indicators in a Lithotripsy Unit
 - 5.10.3. Key Aspects

Module 6. Endourology. Semirigid Ureteroscopy

- 6.1. Endourology. Evolution Over Time
 - 6.1.1. Blind Instrumentation of the Lower Urinary Tract
 - 6.1.1.1. Endoscopy
 - 6.1.2. Blind Instrumentation of the Upper Urinary Tract
 - 6.1.2.1. The First Surgical Endoscopes
 - 6.1.2.2. The Resectoscope
 - 6.1.2.3. The First Electrosurgical Units
 - 6.1.2.4. Incorporation of Fiber Optics
 - 6.1.2.5. Flexible Ureterorenoscopes
 - 6.1.2.6. The Percutaneous Approach
- 6.2. History of Endourology (II). Emergence of Endourology
 - 6.2.1. The Change to the Supine Position
 - 6.2.2. From the Beam Splitter to Digital Endoscopy
 - 6.2.3. Towards Miniaturization
 - 6.2.4. From Mechanical Energy to Laser Light
 - 6.2.5. New Endourological Frontiers and Shared Approaches
 - 6.2.6. Robotics and Computer Applications
- 6.3. Renal and Ureteral Anatomy Applied to Endourology
 - 6.3.1. Renal Anatomy
 - 6.3.1.1. Surgical Anatomy
 - 6.3.1.2. Renal Vascularization
 - 6.3.1.3. Urinary Collecting System: Papilla, Calyx and Renal Pelvis
 - 6.3.1.3.1. Classification of the Pyelocaliceal System
 - 6.3.2. Anatomical Relations of the Intrarenal Vasculature with the Renal Collecting System
 - 6.3.2.1. Intrarenal Access through an Infundibulum
 - 6.3.2.2. Intrarenal Access through the Renal Pelvis
 - 6.3.2.3. Intrarenal Access through a Calicial Fornix
 - 6.3.2.4. Where to Perform the Puncture for Intrarenal Access

- 6.3.3. Urethral Anatomy
 - 6.3.3.1. Surgical Anatomy
 - 6.3.3.2. Anatomical Relations
 - 6.3.3.3. Points of Ureteral Restriction
 - 6.3.3.4. Ureteral Segmentation and Nomenclature
 - 6.3.3.5. Ureteral Vascularization and Innervation
 - 6.3.3.6. Endoscopic Anatomy
- 6.4. Factors and Criteria for the Choice of Surgical Technique
 - 6.4.1. Emergency Treatment of Lithiasic Obstructive Uropathy
 - 6.4.1.1. Emergency Urinary Diversion
 - 6.4.1.2. Emergency Evolutive Contaminated Urine Fluid
 - 6.4.1.3. Emergency Ureteroscopy
 - 6.4.2. Surgical Aspects in the Treatment of Lithiasis: Renal Lithiasis
 - 6.4.2.1. Extracorporeal Shock Wave Lithotripsy
 - 6.4.2.2. Percutaneous Nephrolithotomy
 - 6.4.2.3. Retrograde Intrarenal Surgery
 - 6.4.2.4. Open Surgery, Laparoscopy
 - 6.4.3. Surgical Aspects in the Treatment of Lithiasis: Urethral Lithiasis
 - 6.4.3.1. Ureterorenoscopy
 - 6.4.3.2. Extracorporeal Shock Wave Lithotripsy
 - 6.4.3.3. Endoscopic Combined Intrarenal Surgery
 - 6.4.3.4. Open Surgery, Laparoscopy
- 6.5. Energy Sources in Endourology (I): Mechanical, Ultrasonic and Electrohydraulic
 - 6.5.1. Energy Sources in Endourology
 - 6.5.1.1. Ultrasonic Energy
 - 6.5.1.2. Mechanical Energy
 - 6.5.1.3. Electrohydraulic Energy
- 6.6. Energy Sources in Endourology (II): Laser
 - 6.6.1. Physical Principles of Lasers in Endourology
 - 6.6.2. Comparison of Different Laser Energy Sources: Holmium, Thulium and Others
 - 6.6.3. Safety Protocols and Laser Handling in Endourology

- 6.7. Bladder Lithotripsy
 - 6.7.1. Bladder Stone Disease
 - 6.7.2. Medical and Surgical Treatment. Indications
 - 6.7.3. Endourological Approach
 - 6.7.3.1. Surgical Access, Material and Fragmentation Modalities
 - 6.7.3.2. Limitations of the Technique
- 6.8. Semirigid Ureterorenoscopy
 - 6.8.1. Indications for Semirigid Ureterorenoscopy
 - 6.8.2. Pre-surgery Preparation
 - 6.8.3. Equipment
 - 6.8.4. Technique
 - 6.8.5. Complications
 - 6.8.6. Key Aspects
- 6.9. Small Caliber Ureterorenoscopy
 - 6.9.1. Relevance of Caliber in Treaterorenoscopy
 - 6.9.2. Advantages of Miniaturization
 - 6.9.3. Disadvantages of Miniaturization
- 6.10. Ureterorenoscopy in Pediatric Patients
 - 6.10.1. Application of Endoscopy in Pediatric Patients
 - 6.10.2. Causes of Obstructive Uropathy
 - 6.10.3. Current Surgical Techniques and Materials

Module 7. Retrograde Intrarenal Surgery

- 7.1. Flexible Ureteroscopy. Evolution Over Time
 - 7.1.1. History of the Ureteroscopy
 - 7.1.2. Evolution of Ureteroscopy
 - 7.1.3. Present of the Ureteroscopy
- 7.2. Flexible Ureteroscopy Indications and Extended Indications
 - 7.2.1. Standard Indications for Retrograde Intrarenal Surgery
 - 7.2.2. Extended Indications for Retrograde Intrarenal Surgery
 - 7.2.3. Future Indications for Retrograde Intrarenal Surgery

- 7.3. Material in Flexible Ureteroscopy
 - 7.3.1. Instrumentation Material
 - 7.3.2. Ureteral Access Sheaths
 - 7.3.3. Endoscopic Baskets and Other Work Materials
- 7.4. Standard Technique for Retrograde and Antegrade Flexible Ureteroscopy in Urolithiasis
 - 7.4.1. Patient Positioning for Flexible URS
 - 7.4.2. Surgical Technique and Tricks
 - 7.4.3. Postoperative Urinary Diversion: When and How
- 7.5. Types of Flexible Ureteroscopes
 - 7.5.1. Fiber-optic vs. Digital Ureteroscopes
 - 7.5.2. Reusable and Disposable Ureteroscopes
 - 7.5.3. Aspiration in Flexible Ureteroscopy
- 7.6. Laser in Flexible Ureteroscopy
 - 7.6.1. Laser Fragmentation and Vaporization Techniques in Flexible Ureteroscopy
 - 7.6.2. Optimization of Laser Parameters for the Treatment of Lithiasis in Flexible Ureteroscopy
 - 7.6.3. Safety in the Management of Ureteral Stones
- 7.7. Intrarenal Pressure and Temperature in Flexible Ureteroscopy
 - 7.7.1. Pressure and Temperature in Retrograde Intrarenal Surgery
 - 7.7.2. Complications Attributed to Intrarenal Pressure and Temperature During Retrograde Intrarenal Surgery
 - 7.7.3. Methods of Measuring Intrarenal Temperature and Pressure in Retrograde Intrarenal Surgery
 - 7.7.4. Methods of Irrigation of Intrarenal Temperature and Pressure in Retrograde Intrarenal Surgery
 - 7.7.5. Optimal Management of Intrarenal Temperature and Pressure during Retrograde Intrarenal Surgery
 - 7.7.6. Future of Retrograde Intrarenal Surgery in Intrarenal Temperature and Pressure
- 7.8. ALARA in Flexible Ureteroscopy
 - 7.8.1. Radiation in Retrograde Intrarenal Surgery
 - 7.8.2. Radiation Complications in Patients and Healthcare Personnel
 - 7.8.3. ALARA Applied to Retrograde Intrarenal Surgery
 - 7.8.4. Strategies for Applying ALARA in Retrograde Intrarenal Surgery
 - 7.8.5. Fluoroscopy-free Retrograde Intrarenal Surgery

- 7.9. Complications and Postoperative Management in Flexible Ureteroscopy
 - 7.9.1. Flexible Ureteroscopy. Postoperative Care
 - 7.9.2. Early and Late Diagnosis of Postoperative Complications
 - 7.9.3. Treatment and Prevention of Complications
- 7.10. The Future of Flexible Ureteroscopy
 - 7.10.1. Suction in Flexible Ureteroscopy
 - 7.10.2. Pressure in Flexible Ureteroscopy
 - 7.10.3. Laser in Flexible Ureteroscopy

Module 8. Percutaneous Nephrolithotomy

- 8.1. Position of the Patient for Percutaneous Nephrolithotomy
 - 8.1.1. Prone Position
 - 8.1.1.1. Advantages of the Prone Position
 - 8.1.1.2. Disadvantages of the Prone Position
 - 8.1.1.3. Varieties of the Prone Position
 - 8.1.2. Supine Position
 - 8.1.2.1. Advantages of the Supine Position
 - 8.1.2.2. Disadvantages of the Supine Position
 - 8.1.2.3. Varieties of the Supine Position
 - 8.1.3. Comparison between the Prone Position and the Supine Position
- 8.2. Percutaneous Nephrolithotomy Equipment
 - 8.2.1. Inventoryable Equipment
 - 8.2.2. Expendable Material
 - 8.2.3. The Future of Materials in Percutaneous Surgery
- 8.3. Puncture Techniques
 - 8.3.1. Puncture Techniques. Key Aspects
 - 8.3.2. Fluoroscopy-guided Puncture
 - 8.3.3. Ultrasound-guided Puncture
- 8.4. Dilation Techniques in Percutaneous Nephrolithotomy
 - 8.4.1. General Principles in Dilatation of the Percutaneous Pathway
 - 8.4.2. Dilatation with Alken Metal Dilators
 - 8.4.3. Dilatation with Amplatz-type Fascial Dilators
 - 8.4.4. High-pressure Balloon Dilatation
 - 8.4.5. Single-step Dilatation with Metal Dilators for Minipercutaneous Surgery
 - 8.4.6. Management of Common Complications During Dilatation

- 8.5. Litroticia in Percutaneous Nephrolithotomy. Lasers
 - 8.5.1. Types of Laser Used in Percutaneous Nephrolithotomy
 - 8.5.2. Parameters and Strategies for the Application of Laser in Percutaneous Nephrolithotomy
 - 8.5.3. Precautions, Complications and Results in the Use of Laser in Percutaneous Nephrolithotomy
- 8.6. Percutaneous Nephrolithotomy in Prone and Supine Position
 - 8.6.1. Percutaneous Nephrolithotomy
 - 8.6.1.1. Prone Position
 - 8.6.1.2. Supine Position
 - 8.6.2. Advantages and Disadvantages
 - 8.6.2.1. Prone Position
 - 8.6.2.2. Supine Position
 - 8.6.3. Conclusions. Which One to Choose
- 8.7. Endoscopic Combined Intrarenal Surgery. Bilateral Percutaneous Nephrolithotomy
 - 8.7.1. Endoscopic Combined Intrarenal Surgery: Philosophy and General Principles
 - 8.7.2. Endoscopic Combined Intrarenal Surgery: Indications
 - 8.7.3. Endoscopic Combined Intrarenal Surgery: Technique, Tips and Advice
 - 8.7.4. Bilateral Percutaneous Nephrolithotomy: Indications
 - 8.7.5. Bilateral Percutaneous Nephrolithotomy: Technique, Tips and Tricks
- 8.8. Use of Small Calibers in Percutaneous Nephrolithotomy
 - 8.8.1. Justification for Small Caliber in Natural Language Processing
 - 8.8.2. Types of Small Caliber
 - 8.8.3. Miniperc
- 8.9. Percutaneous Nephrolithotomy in Pediatric Patients
 - 8.9.1. Indications
 - 8.9.2. Puncture Techniques
 - 8.9.3. Considerations in Pediatric Patients
- 8.10. Complications in Percutaneous Nephrolithotomy
 - 8.10.1. Intraoperative Complications
 - 8.10.1.1. During the Process
 - 8.10.1.2. During the Procedure
 - 8.10.1.3. During the Discharge Process
 - 8.10.2. Immediate Postoperative Complications

Module 9. Open, Laparoscopic and Robotic Surgery for Renal Lithiasis

- 9.1. Ureterolithotomy
 - 9.1.1. Ureterolithotomy
 - 9.1.2. Current Indications for Ureterolithotomy
 - 9.1.3. Surgical Technique for Ureterolithotomy
- 9.2. Pyelolithotomy
 - 9.2.1. Pyelolithotomy
 - 9.2.2. Current Indications for Pyelolithotomy
 - 9.2.3. Surgical Technique for Pyelolithotomy
- 9.3. Open Anatomic Nephrolithotomy
 - 9.3.1. Indications for Anatomic Nephrolithotomy
 - 9.3.2. Approach. Surgical Field
 - 9.3.3. Anatomic Nephrolithotomy: Surgical Technique
- 9.4. Laparoscopic Ureterolithotomy
 - 9.4.1. Indications, Material and Preparation of the Operating Room
 - 9.4.2. Laparoscopic and Retroperitoneoscopic (Lumboscopic) Techniques
 - 9.4.3. Management of the Postoperative Period and Complications
- 9.5. Laparoscopic and Robotic Pyelolithotomy
 - 9.5.1. Approach. Trocar Placement. Surgical Field
 - 9.5.2. Dissection of Renal Pelvis. Pyelolithotomy. Extraction of Lithiasis
 - 9.5.3. Pyelolithotomy Closure Suture
- 9.6. Laparoscopic and Robotic Treatment of Lithiasis in the Calyceal Diverticulum
 - 9.6.1. Pathophysiology and Diagnosis of Lithiasis in the Calyceal Diverticulum
 - 9.6.2. Surgical Techniques in the Treatment of Calyceal Lithiasis
 - 9.6.3. Monitoring and Complications of Surgical Treatment
- 9.7. Laparoscopic and Robotic Surgical Approach to Lithiasis in Renal Malformations
 - 9.7.1. Pyelolithotomy in Horseshoe Kidney
 - 9.7.2. Ureterolithotomy in Renal Ectopia
 - 9.7.3. Lithiasis Resolution with Robotic Surgery and Renal Malformations
- 9.8. Laparoscopic and Robotic Anatomic Nephrolithotomy
 - 9.8.1. Surgical Technique for Anatomic Nephrolithotomy in Laparoscopic and Robotic Surgery
 - 9.8.2. Indications and Patient Selection for an Anatomic Nephrolithotomy
 - 9.8.3. Comparison of Results and Complications between Laparoscopic and Robotic Approaches

- 9.9. Nursing and Instrumentation during Laparoscopic and Robotic Procedures
 - 9.9.1. Role of Nursing Staff in the Preparation and Handling of Surgical Instruments
 - 9.9.2. Intervention of the Nursing Team during Laparoscopic and Robotic Procedures
 - 9.9.3. Training in Advanced Technologies and Patient Safety
- 9.10. Nursing and Instrumentation in Endourology
 - 9.10.1. Instruments and Consumables
 - 9.10.2. Surgical Table Layout
 - 9.10.3. Layout of Equipment in the Operating Room

Module 10. Urinary Lithiasis in Special Situations

- 10.1. Urolithiasis Associated with Chronic Urinary Infection
 - 10.1.1. The Role of Bacteria in the Formation and Growth of Urolithiasis
 - 10.1.2. Therapeutic Management
 - 10.1.3. Colonization and Catheters
- 10.2. Urolithiasis in the Caliceal Diverticulum. Indications and Endourological Treatment
 - 10.2.1. Epidemiology, Etiopathogenesis and Classification Systems
 - 10.2.2. Diagnosis: Clinical Manifestations, Associated Metabolic Alterations
 - 10.2.3. Imaging Tests
 - 10.2.4. Therapeutic Strategies
 - 10.2.4.1. Extracorporeal Lithotripsy: Indications and Results
 - 10.2.4.2. Flexible Ureterorenoscopy: Technique and Results
 - 10.2.4.3. Percutaneous Nephrolithotomy: Technique and Results
 - 10.2.4.4. Laparoscopic Approach: Technique and Results
 - 10.2.4.5. Endourology Techniques Results: Comparative Analysis of Recent Studies
 - 10.2.4.6. Proposed Algorithm for the Therapeutic Approach to Renal Lithiasis Located in the Caliceal Diverticulum
- 10.3. Treatment of Lithiasis in Renal Ectopia and Anatomical Anomalies
 - 10.3.1. Renal Ectopia
 - 10.3.2. Horseshoe Kidney
 - 10.3.3. Polycystic Kidneys



- 10.4. Surgery for Lithiasis in Obesity and Musculoskeletal Disorders
 - 10.4.1. Lithiasis Surgery: Key Aspects
 - 10.4.2. Lithiasis Surgery in Obesity
 - 10.4.3. Lithiasis Surgery in Musculoskeletal Disorders
- 10.5. Calcifications on Catheters
 - 10.5.1. Physipathology of Encrustation of Double J Catheters
 - 10.5.2. Impact of Calcification of Double J Catheters in Patients
 - 10.5.3. Strategies to Reduce the Probability of Catheter Calcification in Patients
- 10.6. Urolithiasis in Urinary Diversions
 - 10.6.1. Epidemiology
 - 10.6.2. Etiopathogenesis
 - 10.6.3. Therapeutic Management of Urolithiasis in Urinary Diversion
- 10.7. Lithiasis in Pregnancy
 - 10.7.1. Epidemiology
 - 10.7.2. Pathophysiology
 - 10.7.2.1. Anatomical and Physiological Changes During Pregnancy
 - 10.7.2.2. Lithogenesis: Mechanism of Stone Formation and Composition in Pregnant Patients
 - 10.7.2.3. Perinatal Effects Associated with Urolithiasis in Pregnant Women
 - 10.7.3. Diagnostic Approach
 - 10.7.3.1. Clinical Manifestations, Physical Examination and Differential Diagnosis
 - 10.7.3.2. Laboratory Tests Metabolic Screening
 - 10.7.3.3. Fetal Imaging and Radiation Exposure Tests
 - 10.7.4. Medical Treatment. Safety of Drugs for Urolithiasis Used in Pregnant Women
 - 10.7.4.1. Urinary Diversion: Modality and Indications
 - 10.7.4.2. Definitive Surgical Treatment
 - 10.7.4.3. Algorithm for the Diagnostic and Therapeutic Approach to Urolithiasis in Pregnant Patients
- 10.8. Lithiasis in Pediatric Patients
 - 10.8.1. Indications
 - 10.8.2. Surgical Technique
 - 10.8.3. Patient Position and Anesthesia
 - 10.8.4. Lithiasis in the Inferior Caliceal Group
 - 10.8.5. Complications
- 10.9. Experimental Surgery and Endourology Training Programs
 - 10.9.1. Barriers to Teaching and Learning Surgical Skills
 - 10.9.3. Simulation-Based Training
 - 10.9.4. Experimental Surgery
- 10.10. Lithiasis in the Transplanted Kidney
 - 10.10.1. Epidemiology, Etiopathogenesis and Clinical Presentation
 - 10.10.2. Treatment of Lithiasis in Renal Grafts
 - 10.10.3. Real-World Experience



The interactive summaries for each module will help you to reinforce the concepts of outpatient monitoring of patients with Non-Calcium Renal Lithiasis in a more dynamic way"

04

Teaching Objectives

Thanks to this university program, physicians will have the most sophisticated tools for the diagnosis and advanced treatment of Urinary Stones. In this sense, graduates will master a wide range of minimally invasive techniques that will optimize patient recovery times. At the same time, physicians will develop advanced skills to lead innovative research projects in Urology to contribute to the improvement of healthcare. In this way, specialists will be highly qualified to overcome any obstacle during their clinical practice and will achieve clinical excellence.



“

You will skillfully use the most modern Robotic Surgery, which will allow you to perform surgical procedures with greater precision”



General Objectives

- ♦ Identify the fundamental physical and chemical aspects involved in the formation of kidney stones
- ♦ Delve into the classification of kidney stones according to the etiological factors that generate them
- ♦ Establish the diagnostic foundations based on the study of kidney stones
- ♦ Determine the key diagnostic aspects based on the study of urine
- ♦ Delve into the metabolic study of patients with renal lithiasis
- ♦ Define the classifications of patients at risk of urolithiasis, considering factors that may contribute to the formation of stones
- ♦ Assess the various associated metabolic conditions and their specific treatments
- ♦ Acquire a comprehensive approach to the dietary and clinical management of the lithiasic patient
- ♦ Address the etiology and pathophysiology of non-calcium lithiasis, identifying its distinctive characteristics
- ♦ Define the medical treatment options available for each type of condition
- ♦ Assess the role of genetics and microbiota in the management of Urolithiasis
- ♦ Establish guidelines for pH control and coordination of Urolithiasis units
- ♦ Evaluate renal physiology and pathophysiology, as well as the mechanisms of obstruction
- ♦ Delve into the most widely used diagnostic imaging methods in Renal Lithiasis
- ♦ Define therapeutic approaches to renal colic
- ♦ Identify the complications associated with lithiasis and propose management strategies based on international clinical guidelines
- ♦ Analyze the historical evolution of Extracorporeal Shock Wave Lithotripsy
- ♦ Assess the physical principles, types of energy and those of Extracorporeal Shock Wave Lithotripsy
- ♦ Examine the results, complications and post-procedure follow-up, as well as the latest advances in this technology
- ♦ Establish recommendations based on clinical guidelines and develop radiation protection strategies in the context of Endourology
- ♦ Analyze the historical evolution of endourology and its current applications, focusing on technological and surgical advances
- ♦ Examine renal and ureteral anatomy relevant to endourology, establishing its importance in the execution of procedures
- ♦ Assess the criteria for the selection of surgical techniques and energy sources in Endourology
- ♦ Identify the endourological approaches and specific equipment used in semirigid ureteroscopy
- ♦ Delve into the historical evolution of flexible ureteroscopy and its development
- ♦ Evaluate the standard and extended indications for Retrograde Intrarenal Surgery
- ♦ Examine the materials, surgical techniques and advanced technologies used in Retrograde Intrarenal Surgery
- ♦ Identify intraoperative and postoperative complications, establishing strategies for their prevention and management, with a focus on the application of ALARA principles
- ♦ Analyze the different patient positions in percutaneous nephrolithotomy



Specific Objectives

Module 1. Renal Lithiasis

- ♦ Analyze the thermodynamic and kinetic aspects involved in the formation of kidney stones
- ♦ Identify the etiological aspects involved in the formation of each type of kidney stone
- ♦ Specify the appropriate stages and methodologies for the study of kidney stones
- ♦ Establish the fundamental aspects in the assessment of the risk of urinary crystallization

Module 2. Medical Screening of Patients with Renal Lithiasis

- ♦ Define the criteria for carrying out metabolic studies in patients with Renal Lithiasis
- ♦ Identify the risk factors linked to the formation of Stones in order to classify patients efficiently
- ♦ Manage the main medical treatment strategies for different metabolic conditions
- ♦ Achieve a dietary and drug-based approach in the comprehensive management of patients with lithiasis, based on scientific evidence

Module 3. Management and Outpatient Monitoring of Patients with Non-Calcium Kidney Stones

- ♦ Establish the clinical and diagnostic characteristics of Uric Acid, Magnesium Ammonium Phosphate and Cystine Lithiasis
- ♦ Analyze the impact of genetic factors and microbiota on the predisposition and management of Urolithiasis
- ♦ Evaluate new therapeutic and technological options, such as artificial intelligence
- ♦ Create protocols for the effective control of urinary pH and its application in outpatient follow-up

Module 4. Clinical Presentation of Renal Lithiasis

- ♦ Analyze renal physiology and pathophysiology related to Lithiasis
- ♦ Master imaging techniques and functional tests in the diagnosis of Renal Colic
- ♦ Determine the criteria for the treatment of the different types of Renal Colic and its complications
- ♦ Identify and apply international clinical guidelines in the management of patients with Renal Lithiasis

Module 5. Extracorporeal Shock Wave Lithotripsy. Endoscopic treatment

- ♦ Define the physical principles and types of energy applied in Extracorporeal Shock Wave Lithotripsy
- ♦ Analyze the clinical results and complications derived from the use of Extracorporeal Shock Wave Lithotripsy in Renal Lithiasis
- ♦ Assess the recommendations of clinical guidelines in the follow-up of the condition
- ♦ Propose improvements and new technological applications in Extracorporeal Shock Wave Lithotripsy to optimize results

Module 6. Endourology. Semirigid Ureteroscopy

- ♦ Define the fundamentals of Endourology and its historical evolution in the context of the treatment of Renal Lithiasis
- ♦ Examine renal and ureteral surgical anatomy as a basis for performing safe endourological procedures
- ♦ Analyze the factors that determine the choice of surgical techniques and energy sources in semirigid ureteroscopy
- ♦ Evaluate the complications associated with ureteroscopy and propose management strategies

Module 7. Retrograde Intrarenal Surgery

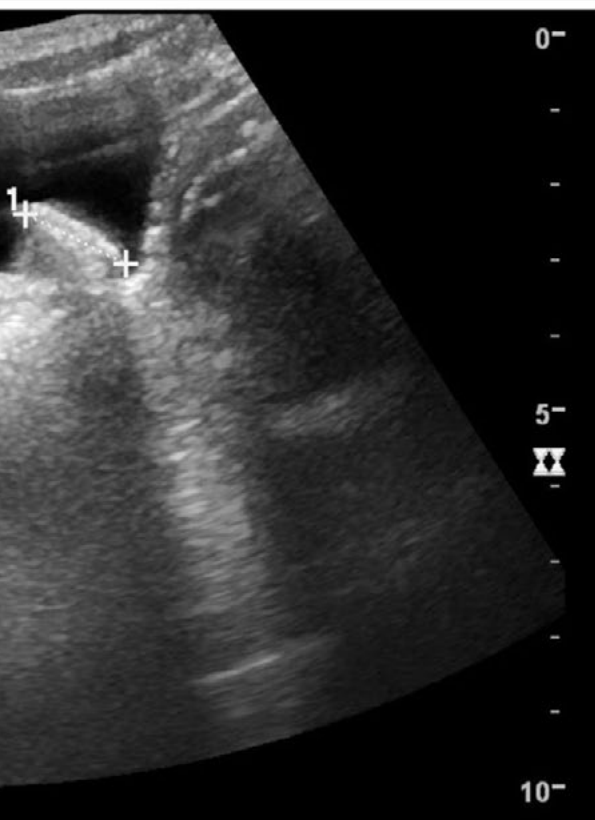
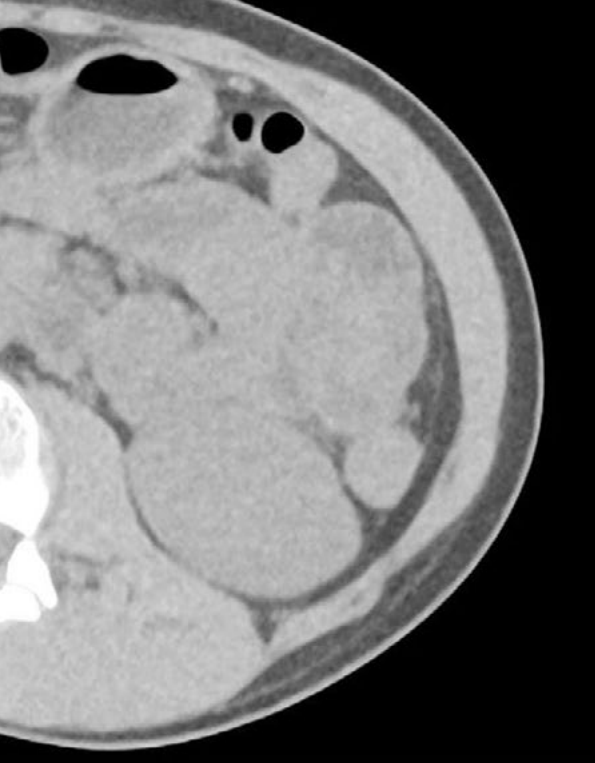
- ♦ Define the indications and limitations of the different types of flexible ureteroscopes
- ♦ Analyze surgical techniques and the management of intraoperative variables such as pressure or temperature
- ♦ Examine the use of lasers and evaluate their effectiveness in the fragmentation of kidney stones
- ♦ Establish measures to reduce exposure to radiation and manage intraoperative complications

Module 8. Percutaneous Nephrolithotomy

- ♦ Define the surgical positions of the patient in percutaneous nephrolithotomy and their impact on renal access
- ♦ Analyze puncture and dilatation techniques, identifying the most appropriate ones according to the clinical situation
- ♦ Evaluate the use of different lasers and lithotripsy systems in percutaneous nephrolithotomy
- ♦ Identify the specific indications and techniques for the use of reduced calibers

Module 9. Open, Laparoscopic and Robotic Surgery for Renal Lithiasis

- ♦ Define ureterolithotomy and pyelolithotomy procedures in their open, laparoscopic and robotic variants
- ♦ Examine approaches to Lithiasis in Renal Malformations
- ♦ Analyze anatomical nephrolithotomy, its indications and the technical details of its execution
- ♦ Establish the role of Nursing in instrumentation and assistance during laparoscopic or robotic procedures



Module 10. Urinary Lithiasis in Special Situations

- ♦ Analyze the treatment of lithiasis associated with chronic infections, anatomical abnormalities and pregnancy
- ♦ Define strategies for the treatment of Lithiasis in urinary diversions and kidney transplantation
- ♦ Assess the incidence and management of catheter calcifications and their clinical implications
- ♦ Propose specific approaches to Lithiasis in patients with special conditions, such as Obesity or Musculoskeletal Disorders



You will have comprehensive knowledge of the ethical and safety regulations applicable to clinical practice, which will ensure that your urological procedures stand out for their efficiency”

05

Career Opportunities

This Master's Degree in Urolithiasis represents a unique opportunity for physicians seeking to specialize and update their knowledge in the management of Urinary Stones. Through innovative teaching materials, graduates will master the most advanced technological tools and apply the latest scientific evidence in the field of Urology. Thanks to this, practitioners will increase the quality of their clinical practice and improve their job prospects by being prepared to access strategic roles of greater responsibility.



“

Are you looking to take on more responsible clinical roles? With this university degree you will be prepared to work as a Director of Urology in the most prestigious institutions”

Graduate Profile

Graduates of this university degree will be physicians specialized in the diagnosis and advanced treatment of Urolithiasis. They will be highly qualified to integrate the most modern minimally invasive techniques in clinical settings, improving patient care and efficiency in resource management. They will also have the skills to design, implement, and assess clinical protocols that optimize therapeutic processes. They will therefore be able to personalize care and effectively monitor the progress of patients in real time. In addition, they will be prepared to address ethical challenges and guarantee the security of medical data.

You will lead cutting-edge projects that incorporate emerging technological tools to optimize the quality of medical care and offer personalized solutions.

- ♦ **Clinical Problem Solving:** Ability to apply critical thinking in the identification and solution of challenges associated with the management of urinary stones, optimizing treatments through advanced approaches
- ♦ **Technological Adaptation in Urology:** Ability to incorporate the latest technologies in the diagnosis and treatment of urolithiasis, improving both the efficiency and quality of patient care
- ♦ **Ethical Commitment and Data Security:** Responsibility in the application of ethical principles and privacy regulations, guaranteeing the protection of patient data when using emerging technologies
- ♦ **Research and Innovation:** Competence to lead research and development projects in the field of Urolithiasis, promoting the progress of clinical practices based on scientific evidence



After completing the program, you will be able to use your knowledge and skills in the following positions:

- 1. Urologist specialized in Minimally Invasive Procedures:** Performs advanced interventions for the treatment of urinary stones, using minimally invasive techniques that reduce recovery time and improve clinical outcomes.
- 2. Specialist in Prevention and Management of Urinary Stones:** Focuses on disease prevention and comprehensive patient management to reduce recurrence
- 3. Clinical Innovation Supervisor in Urolithiasis:** Leads projects that incorporate new technologies and innovative approaches in the treatment of Urolithiasis, improving the quality of medical care
- 4. Teleurology Expert:** Uses digital platforms to offer remote consultations and follow-up to patients with Urolithiasis, improving access and continuity of care.
- 5. Coordinator of Multidisciplinary Care in Urolithiasis:** Facilitates collaboration between different medical specialties to offer a comprehensive approach to the treatment of patients with Urinary Tract Conditions
- 6. Urolithiasis Management Consultant:** Advises healthcare institutions on the implementation of protocols and strategies for the optimal treatment of patients with Urinary Diseases
- 7. Clinical Researcher in Urolithiasis:** Dedicated to conducting clinical studies and trials to develop and assess new therapies in the treatment of Urolithiasis



You will offer comprehensive advice to organizations on the implementation of protocols that improve care for patients with conditions such as Prostate Cancer”

06

Study Methodology

TECH is the world's first university to combine the **case study** methodology with **Relearning**, a 100% online learning system based on guided repetition.

This disruptive pedagogical strategy has been conceived to offer professionals the opportunity to update their knowledge and develop their skills in an intensive and rigorous way. A learning model that places students at the center of the educational process giving them the leading role, adapting to their needs and leaving aside more conventional methodologies.



“

TECH will prepare you to face new challenges in uncertain environments and achieve success in your career”

The student: the priority of all TECH programs

In TECH's study methodology, the student is the main protagonist.

The teaching tools of each program have been selected taking into account the demands of time, availability and academic rigor that, today, not only students demand but also the most competitive positions in the market.

With TECH's asynchronous educational model, it is students who choose the time they dedicate to study, how they decide to establish their routines, and all this from the comfort of the electronic device of their choice. The student will not have to participate in live classes, which in many cases they will not be able to attend. The learning activities will be done when it is convenient for them. They can always decide when and from where they want to study.

“

*At TECH you will NOT have live classes
(which you might not be able to attend)”*



The most comprehensive study plans at the international level

TECH is distinguished by offering the most complete academic itineraries on the university scene. This comprehensiveness is achieved through the creation of syllabi that not only cover the essential knowledge, but also the most recent innovations in each area.

By being constantly up to date, these programs allow students to keep up with market changes and acquire the skills most valued by employers. In this way, those who complete their studies at TECH receive a comprehensive education that provides them with a notable competitive advantage to further their careers.

And what's more, they will be able to do so from any device, pc, tablet or smartphone.

“

TECH's model is asynchronous, so it allows you to study with your pc, tablet or your smartphone wherever you want, whenever you want and for as long as you want”

Case Studies and Case Method

The case method has been the learning system most used by the world's best business schools. Developed in 1912 so that law students would not only learn the law based on theoretical content, its function was also to present them with real complex situations. In this way, they could make informed decisions and value judgments about how to resolve them. In 1924, Harvard adopted it as a standard teaching method.

With this teaching model, it is students themselves who build their professional competence through strategies such as Learning by Doing or Design Thinking, used by other renowned institutions such as Yale or Stanford.

This action-oriented method will be applied throughout the entire academic itinerary that the student undertakes with TECH. Students will be confronted with multiple real-life situations and will have to integrate knowledge, research, discuss and defend their ideas and decisions. All this with the premise of answering the question of how they would act when facing specific events of complexity in their daily work.



Relearning Methodology

At TECH, case studies are enhanced with the best 100% online teaching method: Relearning.

This method breaks with traditional teaching techniques to put the student at the center of the equation, providing the best content in different formats. In this way, it manages to review and reiterate the key concepts of each subject and learn to apply them in a real context.

In the same line, and according to multiple scientific researches, reiteration is the best way to learn. For this reason, TECH offers between 8 and 16 repetitions of each key concept within the same lesson, presented in a different way, with the objective of ensuring that the knowledge is completely consolidated during the study process.

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.



A 100% online Virtual Campus with the best teaching resources

In order to apply its methodology effectively, TECH focuses on providing graduates with teaching materials in different formats: texts, interactive videos, illustrations and knowledge maps, among others. All of them are designed by qualified teachers who focus their work on combining real cases with the resolution of complex situations through simulation, the study of contexts applied to each professional career and learning based on repetition, through audios, presentations, animations, images, etc.

The latest scientific evidence in the field of Neuroscience points to the importance of taking into account the place and context where the content is accessed before starting a new learning process. Being able to adjust these variables in a personalized way helps people to remember and store knowledge in the hippocampus to retain it in the long term. This is a model called Neurocognitive context-dependent e-learning that is consciously applied in this university qualification.

In order to facilitate tutor-student contact as much as possible, you will have a wide range of communication possibilities, both in real time and delayed (internal messaging, telephone answering service, email contact with the technical secretary, chat and videoconferences).

Likewise, this very complete Virtual Campus will allow TECH students to organize their study schedules according to their personal availability or work obligations. In this way, they will have global control of the academic content and teaching tools, based on their fast-paced professional update.



The online study mode of this program will allow you to organize your time and learning pace, adapting it to your schedule”

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.

The university methodology top-rated by its students

The results of this innovative teaching model can be seen in the overall satisfaction levels of TECH graduates.

The students' assessment of the teaching quality, the quality of the materials, the structure of the program and its objectives is excellent. Not surprisingly, the institution became the top-rated university by its students according to the global score index, obtaining a 4.9 out of 5.

Access the study contents from any device with an Internet connection (computer, tablet, smartphone) thanks to the fact that TECH is at the forefront of technology and teaching.

You will be able to learn with the advantages that come with having access to simulated learning environments and the learning by observation approach, that is, Learning from an expert.



As such, the best educational materials, thoroughly prepared, will be available in this program:



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.

This content is then adapted in an audiovisual format that will create our way of working online, with the latest techniques that allow us to offer you high quality in all of the material that we provide you with.



Practicing Skills and Abilities

You will carry out activities to develop specific competencies and skills in each thematic field. Exercises and activities to acquire and develop the skills and abilities that a specialist needs to develop within the framework of the globalization we live in.



Interactive Summaries

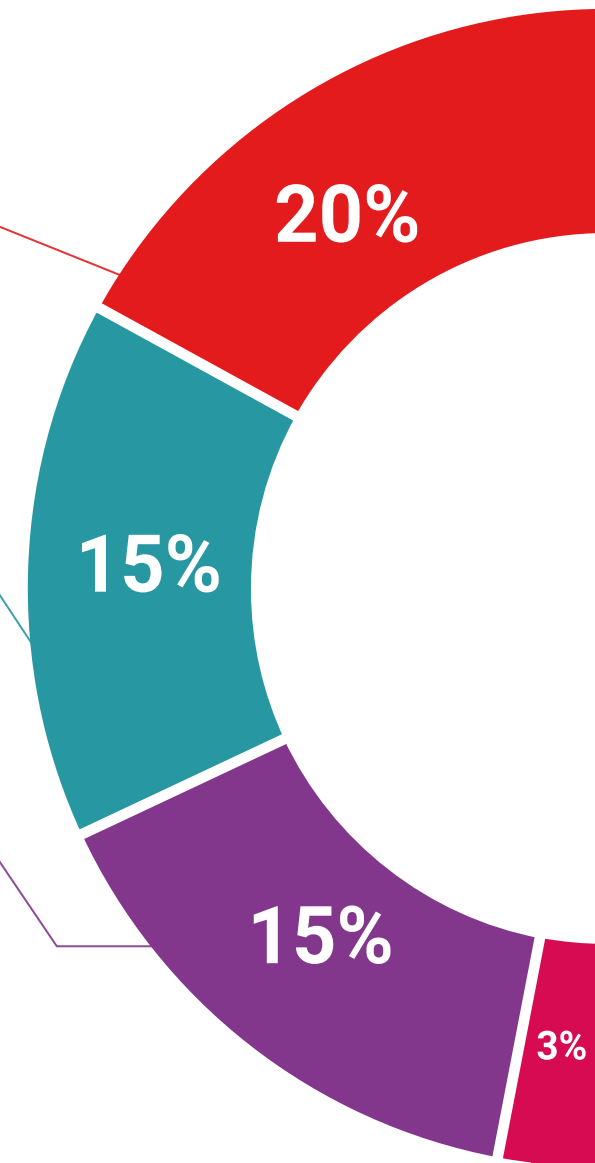
We present the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

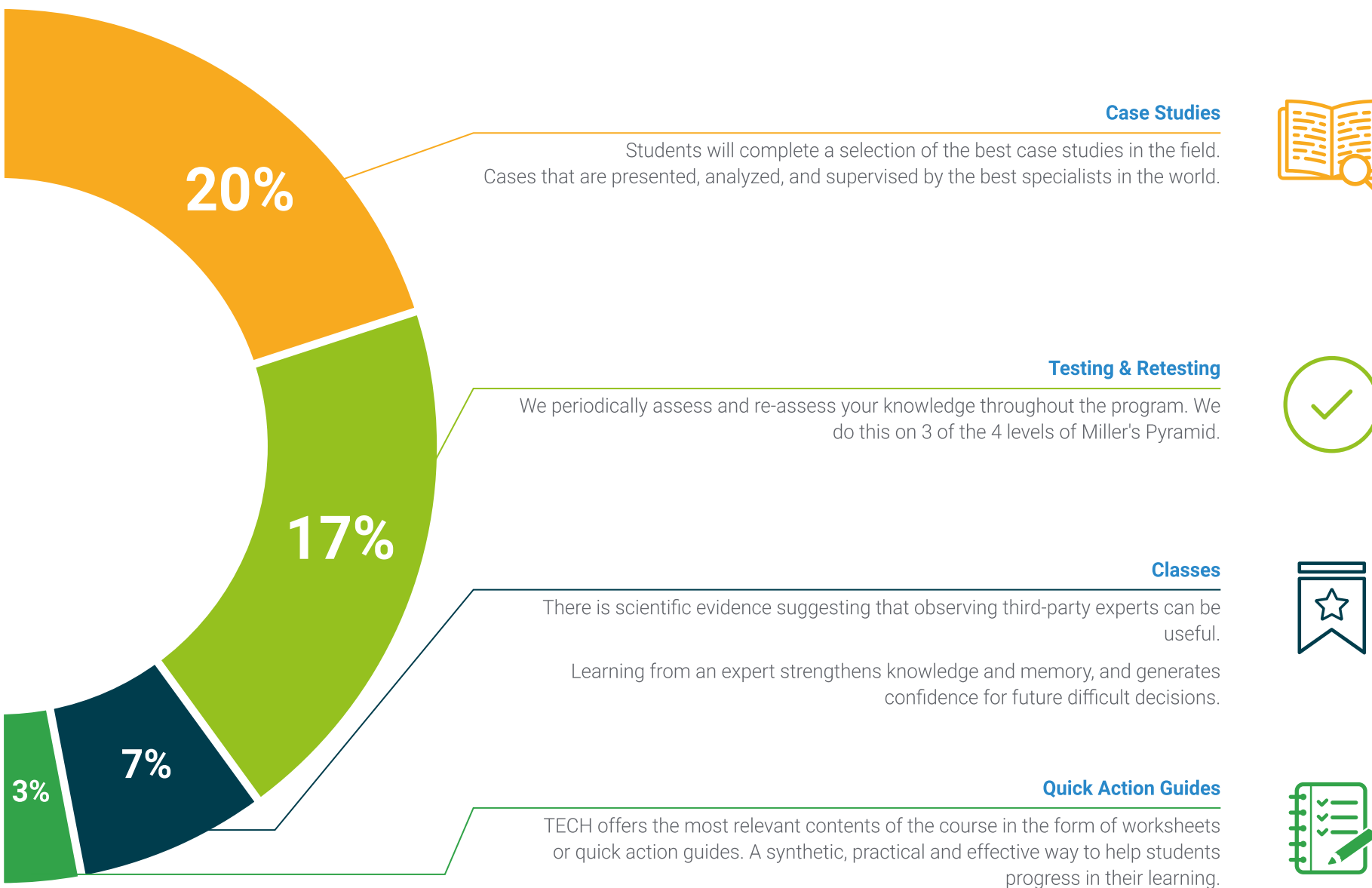
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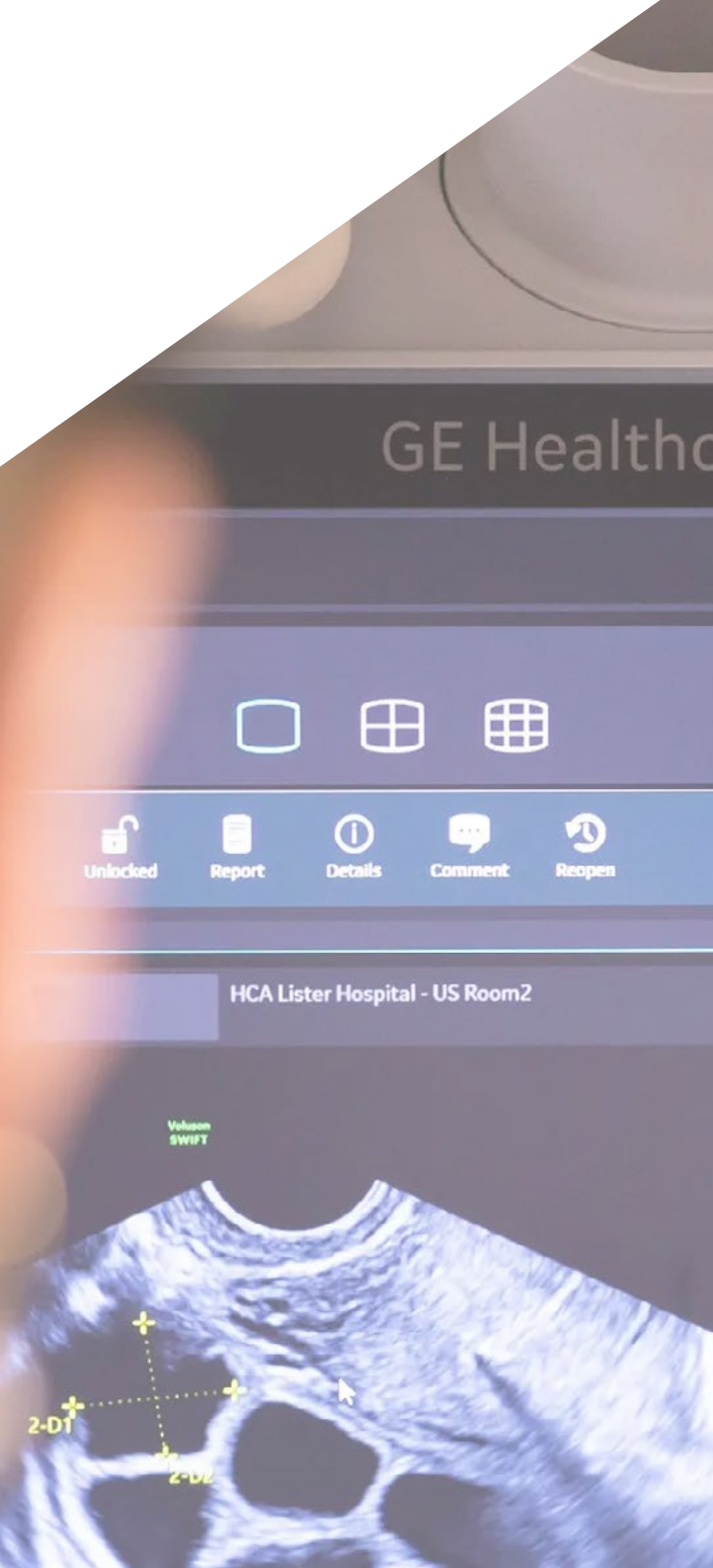




07

Teaching Staff

TECH's philosophy is to make the most comprehensive and up-to-date university degrees on the academic scene available to everyone. For this reason, it follows a rigorous process to form its respective teaching staff. Thanks to this effort, this Master's Degree has the participation of the best specialists in the field of Urology. In this way, they have developed a variety of teaching materials that will provide students with the keys to managing the latest innovations in this field and will be used to significantly optimize the quality of life of users.





“

You will have the support of the entire teaching team, made up of true references in the approach to Urolithiasis”

Management



Dr. Servera Ruiz de Velasco, Antonio

- Director of Endourology and Lithiasis at the Hospital of Manacor
- Urology Specialist at Juaneda Miramar Hospital
- Internship in Laparoscopic Pelvic and Retroperitoneal Surgery at Heidelberg University Hospital
- Scientific Researcher
- Director of 6 international Clinical Trials
- Internship in Robotic Surgery at the Institut Mutualiste Montsouris
- Internship in Laparoscopic and Percutaneous Surgery at the Italian Hospital of Buenos Aires
- PhD in Health Sciences from the University of the Balearic Islands
- Degree in Medicine and Surgery from the University of Zaragoza
- Member of the European College of Urology

Professors

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- ♦ Head of Section of Endourology and Lithiasis at La Paz University Hospital
- ♦ Urology Specialist at La Paz University Hospital
- ♦ Urologist at the University Hospital Vithas Madrid La Milagrosa
- ♦ Lecturer in Urology training courses and postgraduate studies.
- ♦ Regular speaker at European and Spanish Urologic Association Congresses
- ♦ Member of the International Urolithiasis Alliance
- ♦ Doctor of Medicine and Surgery from the Autonomous University of Madrid

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- ♦ Specialist in Urology Pioneer in Living Donor Renal Transplant Surgery
- ♦ Head of the Renal Transplant Surgical Team at the Puigvert Foundation. Barcelona
- ♦ Head of Oncology at the Puigvert Foundation
- ♦ Director of the Renal Cryotherapy Program at the University of California. Los Angeles
- ♦ Director of the Renal Transplant Guidelines at the European School of Urology
- ♦ Professor at the University of California
- ♦ Head of the Laparoscopy Working Group at the European Society of Urotechnology (ESUT)
- ♦ Medical Specialist in Urology at the University of Padua. Italy
- ♦ Doctor of Medicine and Surgery, University of Padua
- ♦ Fellow in Endourology, Laparoscopy and Oncological Robotics, Endourology and Renal Transplantation at the University of California
- ♦ Winner of the EAU Winter Forum Award 2012 for the best European urologist
- ♦ World's Best Young Urologist with the Arthur Smith Award given by the World Association of Endourology
- ♦ Member of: Editorial board of several national and international journals such as European Urology, Journal of Urology, Journal of Endourology, World Journal of Urology

Dr. Valdivia Uría, José Gabriel

- ♦ Director of the Urology Department at Lozano Blesa University Hospital
- ♦ Specialist in Animal, Applied and Experimental Surgery
- ♦ Scientific Researcher with more than 200 specialist publications
- ♦ President of the Spanish Association of Videosurgery
- ♦ Founder of the In Vivo Group of Biomedical Applications of the Nanoscience Institute of Aragon
- ♦ He has received more than 21 awards for his clinical contribution
- ♦ PhD in Medicine and Surgery from the University of Zaragoza
- ♦ Member of: Spanish Association of Urology and National Commission of the Specialty

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- ♦ Chief of the Urology Service of Vinalopó Hospital
- ♦ Manager of the Urological Clinic Juan Antonio Galan
- ♦ Coordinator of the Childhood Mental Health Unit, Alicante University General Hospital
- ♦ Specialist in Urology at the General University Hospital of Elche
- ♦ Coordinator of the Urolithiasis Group of the Spanish Association of Urology.
- ♦ Author of numerous scientific articles from his specialty
- ♦ Doctor of Medicine and Surgery from the University of Valencia

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- ♦ Specialist in Urology at Clínica Delfos, Bellvitge Hospital
- ♦ National Coordinator of Lithiasis of the Spanish Association of Urology.
- ♦ Bachelor's Degree in Medicine and Surgery
- ♦ Specialist in Urology

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- ♦ Director of the Pediatric Urology Unit at the Puigvert Foundation
- ♦ Director of Operations at the Puigvert Foundation
- ♦ Urology Specialist at the Plató Hospital, Barcelona
- ♦ Principal Investigator at the Research Institute - Santa Creu i Sant Pau Hospital
- ♦ Internship in Urological Laparoscopy at the Free University of Brussels
- ♦ PhD in Medicine and Surgery from the Autonomous University of Barcelona
- ♦ Master's Degree in Cosmetic, Aesthetic and Anti-Aging Medicine from the University of Barcelona
- ♦ Master's Degree in Health Management and Administration from the University of Barcelona
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- ♦ Editor of *"Actas Españolas de Urología"*
- ♦ Editor of *"World Journal of Urology"*
- ♦ Internship in Endourology and Lithiasis at Muljibhai Patel Urological Hospital
- ♦ Endourology and Kidney Stones Internship at Tenon Hospital
- ♦ Urology Residency at the Puigvert Foundation, Barcelona
- ♦ Degree in Medicine and Surgery from the Javeriana Pontifical University
- ♦ Certification as a Fellow of the European Board of Urology
- ♦ Member of: International Society of Urology and European Board of Urology Assessment Committee

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- ♦ Researcher at the Institute of Experimental Immunology at the University Hospital of Bonn
- ♦ Founder of PHHP Team
- ♦ Scientific Consultant for Novo Nordisk
- ♦ Promoter of the European Association of Patients with Hyperoxaluria
- ♦ Biomedical Researcher at Orphan Biotech
- ♦ Advisor to Meta Pharmaceuticals
- ♦ PhD in Biomedical Sciences from the University of La Laguna
- ♦ Master's Degree in Molecular Biomedicine from the Autonomous University of Madrid
- ♦ Degree in Medicine from the University of La Laguna
- ♦ Bachelor's Degree in Biology from the University of La Laguna
- ♦ Member of the OxalEurope Foundation
- ♦ Certification in Animal Experimentation

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- ♦ Director of the Urologic Oncology Unit at Manises Hospital
- ♦ President of the Valencian Community Urology Association
- ♦ Expert in Laparoscopic Surgery
- ♦ Specialist Urology Physician at La Fe Hospital
- ♦ Clinical Researcher
- ♦ PhD in Health Sciences with specialization in Urology from the Catholic University of Valencia
- ♦ Master's Degree in Advanced Prostate Cancer from the University of Salamanca
- ♦ Bachelor's Degree in Medicine from the University of Valencia
- ♦ Certification as Fellow of the European Board of Urology
- ♦ Member of: European Association of Urology, Spanish Association of Urology and Association of Urology of the Valencian Community

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- ♦ Urologist at the Corachan Clinic
- ♦ Urology Physician at the Red Cross
- ♦ Specialist in Urology at Dexeus Clinic
- ♦ Physician in Internal Medicine, Surgery, Pediatrics and Gynecology at the Clinical Hospital of Barcelona
- ♦ Internship at Karolinska Institute of Sweden
- ♦ Internship in the Department of Urology at the University of Miami
- ♦ Residency in Urology at Puigvert Foundation, Barcelona
- ♦ PhD in Research Proficiency from the Autonomous University of Barcelona
- ♦ Master's Degree in Tissue Engineering from the University of Granada
- ♦ Bachelor's Degree in Medicine and Surgery from the University of Barcelona
- ♦ Member of: Spanish Association of Urology and European Association of Urology

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- ♦ Urologist at Nuestra Señora del Prado General University Hospital
- ♦ Physician in the Urology Department at Parque Marazuela Hospital
- ♦ Urology Specialist at Campo Arañuelo Regional Hospital
- ♦ Internship in Endoscopic Surgery and Laparoscopy at the University of Carabobo
- ♦ Residency at Dr. Egor Nucete General Hospital
- ♦ Postgraduate in Urology at Hospital Universitario de los Andes
- ♦ Master's Degree in Minimally Invasive Urological Surgery at Centro Jesús Usón
- ♦ Bachelor's Degree in Medicine from the Rómulo Gallegos University
- ♦ Member of the World Venezuelan Urologists Association

Dr. Arrabal Polo, Miguel Ángel

- ♦ Head of Urology at the San Cecilio University Hospital
- ♦ Urology Physician at the Novamédica Clinic
- ♦ Urologist at the Asisa Medical Center
- ♦ Specialist in Lithiasis, Andrology and Minimally Invasive Surgery
- ♦ Clinical Researcher with an extensive scientific production
- ♦ PhD in Medicine with specialization in Surgery and Urology from the University of Granada
- ♦ Master's Degree in Tissue Engineering from the University of Granada
- ♦ Master's Degree in Stem Cells and Regenerative Medicine from the University of the Peoples of Europe
- ♦ Bachelor's Degree in Medicine with specialization in Urology from the University of Granada
- ♦ Winner of 25 awards for his clinical contribution

Dr. Cepeda Delgado, Marcos

- ♦ Urology Specialist Río Hortega Valladolid University Hospital
- ♦ SACYL Area Specialist Physician
- ♦ Certified for Da Vinci Robotic Surgery by the Minimally Invasive Center IRCAD of Strasbourg
- ♦ Training Stay in Robotic Surgery and Endourology at Virginia Mason Hospital in Seattle and Wake Forest Hospital in Winston-Salem
- ♦ Associate Professor of Urology at the Faculty of Medicine of the University of Valladolid
- ♦ PhD in Surgery and Medicine from the University of Valladolid
- ♦ Graduate in Surgery and Medicine from the University of Valladolid
- ♦ Diploma of the European Board of Urology by the European Association of Urology
- ♦ Member of: EULIS and ESUT

Dr. Ortiz Arduán, Alberto

- ♦ Head of Nephrology and Hypertension at the Jiménez Díaz Foundation University Hospital
- ♦ Specialist in Nephrology
- ♦ Coordinator of the Spanish Renal Research Network
- ♦ Postdoctoral Researcher in Molecular Nephrology at the University of Pennsylvania
- ♦ Editor of the journal "Clinical Kidney Journal"
- ♦ Corresponding Academician of the Royal National Academy of Medicine of Spain
- ♦ PhD in Medicine from the Autonomous University of Madrid
- ♦ Master's Degree in Medical Management and Clinical Administration from UNED
- ♦ Bachelor's Degree in Medicine and Surgery from the Autonomous University of Madrid
- ♦ Member of: European Renal Association, Dutch Kidney Foundation, Madrid Nephrology Society and Editorial Board of the American Society of Nephrology

Dr. Llanes González, Luis

- ♦ Head of the Urology Department at Getafe University Hospital
- ♦ Director of Urology at Torrejón University Hospital
- ♦ Specialist Urology Physician at Fuenlabrada University Hospital
- ♦ Clinical Researcher with an extensive scientific production
- ♦ Urologist at the Institute of Advanced Urological Surgery
- ♦ Urology Residency at the Medipol Clinic in Perpignan
- ♦ PhD in Medicine and Surgery from the Complutense University of Madrid
- ♦ Master's Degree in Health Management from the UNED
- ♦ Degree in Medicine and Surgery from the Autonomous University of Madrid
- ♦ Member of: European Association of Urology, Spanish Association of Urology, Madrid Urological Society and European Randomized Study of Screening for Prostate Cancer

Dr. Ballesta Martínez, Begoña

- ♦ Head of the Urology Department at the Vinalopó University Hospital
- ♦ Expert Urology Physician at the Quirón Salud Torrevieja Group
- ♦ Urology Specialist at Nuestra Señora de Candelaria University Hospital
- ♦ Urologist at José Molina Orosa University Hospital
- ♦ Internship in Minimally Invasive Oncological and Reconstructive Surgery at the Royal Perth Hospital
- ♦ Urology Residency at Patras University Hospital
- ♦ PhD in Urology from the University of La Laguna
- ♦ Bachelor of Medicine from the Miguel Hernández University
- ♦ Member of the European Association of Urology

Dr. Soria González, Federico

- ♦ Head of the Experimental Surgery Service at the Ramón y Cajal University Hospital
- ♦ President of the Animal Experimentation Ethics Committee
- ♦ Specialist in Endourology and Minimally Invasive Surgery applied to Urology
- ♦ Veterinarian at the Jesús Usón Minimally Invasive Surgery Center
- ♦ Clinical Researcher in Endoscopy at the Jesús Usón Minimally Invasive Surgery Center
- ♦ PhD in Animal Health and Medicine from the University of Extremadura
- ♦ Bachelor's Degree in Veterinary Medicine from the University of Extremadura
- ♦ Member of: Spanish Association of Veterinary Specialists in Small Animals, Spanish Society of Veterinary Surgery and Official College of Veterinarians

Dr. Bahilo Mateu, Pilar

- ♦ Specialist in Urology. Expert in Lithotripsy
- ♦ Urologist at La Fe University and Polytechnic Hospital
- ♦ Urologist at the Quirónsalud Valencia Hospital
- ♦ Author and co-author of articles published in scientific journals

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- ♦ Head of the Endourology, Lithiasis and Laser Section at the Italian Hospital of Buenos Aires
- ♦ Director of the Laser Area of the Urology Department at the Italian Hospital of Buenos Aires
- ♦ Specialist in Endourology and Lithiasis Diseases
- ♦ Staff Physician, Renal Transplant Section at the Italian Hospital of Buenos Aires
- ♦ Residency in Urology at the Italian Hospital of Buenos Aires
- ♦ PhD in Urology from the Argentine Society of Urology
- ♦ Degree in Medicine from the H.A. Barceló Foundation
- ♦ Member of: Argentine Society of Urology, Endourological Society, International Society of Urology, Ecuadorian Society of Urology, Venezuelan Society of Urology, Mexican Society of Urology and Urological Association of Central America and the Caribbean

Dr. Fumero Arteaga, Sergio

- ♦ Director of the Lithiasis Unit at the Nuestra Señora de Candelaria University Hospital
- ♦ Expert in Endourology and Minimally Invasive Surgery
- ♦ Clinical Researcher
- ♦ Residency in Urology at the University Hospital of the Canary Islands
- ♦ Degree in Medicine from the University of La Laguna
- ♦ Certification as a Fellow of the European Board of Urology
- ♦ Member of: European Association of Urology and Spanish Association of Urology

Dr. García García, Irene

- ♦ Physician in the Nephrology Unit at the Puerta de Hierro University Hospital
- ♦ Specialist in Nephrology
- ♦ Degree in Medicine and Surgery from the University of Alcalá de Henares

Dr. Grases Freixedas, Feliciano

- ♦ Director of the Renal Lithiasis Research Laboratory at the University Institute of Health Sciences
- ♦ Director of the Renal Calculus Biobank
- ♦ Specialist in the field of Urology
- ♦ Scientific Researcher with 300 international publications and 5 books
- ♦ PhD in Medical Sciences with a specialization in Urology from the University of Barcelona
- ♦ Bachelor of Medicine from the University of Barcelona
- ♦ Full Member of the Royal Academy of Medicine of the Balearic Islands

Dr. Costa-Bauzá, Antonia

- ♦ Professor of Toxicology, Fundamental Biology and Health Sciences
- ♦ Researcher in Renal Lithiasis and Biomineralization at the University Institute of Health Sciences
- ♦ Author of the books "Crystallization in solution. Basic concepts" and "Kidney stones. Types and prevention"
- ♦ Author of more than 170 specialized articles published in indexed journals
- ♦ Speaker at more than 220 scientific conferences on a national and global scale
- ♦ PhD in Chemical Sciences from the University of the Balearic Islands
- ♦ Member of the Renal Lithiasis Research Laboratory

Dr. Martínez Corral, María Elena

- ♦ Specialist Physician in Urology at the University Hospital Complex of Pontevedra
- ♦ Urologist at the Jiménez Díaz Foundation University Hospital
- ♦ Specialist in Lithiasis
- ♦ Clinical Researcher
- ♦ Expert in Endourology

Dr. Budía Alba, Alberto

- ♦ Head of the Lithotripsy and Endourology Unit at La Fe University and Polytechnic Hospital in Valencia
- ♦ National Coordinator of the Lithiasis group of the Spanish Association of Urology
- ♦ Vice-president of AUCV
- ♦ Associate Professor at the University of Valencia
- ♦ Doctor of Medicine and Surgery cum laude by the ULV
- ♦ Degree in Medicine and Surgery at ULV
- ♦ Master's Degree in Management and Organization of Hospitals and Health Services from the UPV
- ♦ Member of: EULIS and EAU

Dr. Caballero Romeu, Juan Pablo

- ♦ Urologist at the University General Hospital of Alicante
- ♦ Urology Specialist at the General University Hospital of Elche
- ♦ Urology Specialist at Monumental Clinic
- ♦ Urology Specialist at Vithas Medimar Hospital
- ♦ Collaborating researcher in several R&D projects
- ♦ Author of several scientific publications
- ♦ Doctor of Medicine from the University Miguel Hernández
- ♦ Master's Degree CAP in Advanced Prostate Cancer at the AEU University of Salamanca
- ♦ Master's Degree in Comprehensive Medical and Surgical Management of Localized, Advanced and Metastatic Renal Cancer by the AEU University of Salamanca

Dr. Aranda Pérez, Javier

- ♦ Urology Specialist at the University Hospital of Cáceres
- ♦ Urologist at the University Hospital of Vinalopó
- ♦ Clinical Projects Manager at the Spanish Association of Urology
- ♦ Residency in Urology at the University Hospital of Cáceres
- ♦ PhD in Conservative Management of Urothelial Carcinoma from the University of Extremadura
- ♦ Master's Degree in Advanced Minimally Invasive Urological Surgery from the University of Extremadura
- ♦ Master's Degree in Localized, Advanced and Metastatic Prostate Cancer from the University of Salamanca
- ♦ Master's Degree in Multidisciplinary Approach to Prostate Cancer from the Complutense University of Madrid
- ♦ Master's Degree in Integration of Medical Knowledge and Clinical Problem Solving from UCAM
- ♦ Degree in Medicine from the Complutense University of Madrid
- ♦ Certification as a Fellow of the European Board of Urology

Dr. Canós Nebot, Ángela

- ♦ Urology Specialist at Dr. Balmis General University Hospital
- ♦ Clinical Researcher
- ♦ Residency in Urology at Dr. Balmis General University Hospital
- ♦ Degree in Medicine and Surgery from the University of Valencia

Dr. Cano García, María del Carmen

- ♦ Director of the Urologic Oncology Department at the Central Hospital of Sevilla
- ♦ Head of the Urologic Oncology Department at the National Medical Center
- ♦ Specialist doctor in the Urology Department at the San Cecilio University Hospital
- ♦ Scientific researcher with an extensive portfolio of specialized articles
- ♦ Coordinator of Clinical Projects at the Institute of Biomedical Research in Salamanca
- ♦ Urologist at the University Hospital of Granada
- ♦ Urologic Oncology consultant at the Mayo Clinic
- ♦ PhD in Medicine from the University of Granada
- ♦ Master's Degree in Urologic Oncology from the CEU Cardenal Herrera University
- ♦ Master's Degree in Healthcare Quality Management in Health Services from the University of Murcia
- ♦ Master's Degree in Urological Surgery Update from the CEU Cardenal Herrera University
- ♦ Degree in Medicine from the University of Valencia
- ♦ Member of: Spanish Society of Urology and European Association of Urology

Dr. Ramos Ramos, Juan Carlos

- ♦ Internal Medicine Specialist
- ♦ Assistant Physician at the Infectious Diseases Unit of the University Hospital La Paz, Madrid
- ♦ Internist at the University Hospital Sanitas La Zarzuela, Madrid
- ♦ PhD in Medicine and Surgery from the University of Alcalá de Henares, Madrid
- ♦ Master's Degree in Infectious Diseases in Intensive Care from the Universidad-Empresa Foundation at the University of Valencia

Dr. Pérez Fentes, Daniel Adolfo

- ♦ Head of the Endourology and Lithiasis Unit of the Urology Service of the University Hospital Complex of Santiago de Compostela.
- ♦ Founder and director of Medical Urologia
- ♦ Urology specialist at Rosaleda HM Hospital
- ♦ Researcher in national and international research groups, and in competitive projects of the ISCIII and the European Union.
- ♦ Training instructor in Endourology and Endourological surgery
- ♦ Author of numerous book chapters and articles in national and international medical journals
- ♦ Speaker in more than 100 courses and congresses worldwide.
- ♦ PhD in Medicine and Surgery from the University of Santiago de Compostela
- ♦ Degree in Medicine and Surgery from the University of Santiago de Compostela.
- ♦ Member of: Royal Academy of Medicine and Surgery of Galicia

Dr. Rivero Cárdenes, Alberto

- ♦ Director of Endourology at the University Hospital of Burgos
- ♦ Urologist at San Roque Hospitals
- ♦ Expert in Urinary Lithiasis
- ♦ Physician at Recoletas Burgos Hospital
- ♦ Clinical Researcher
- ♦ Residency in Urology at Río Hortega University Hospital
- ♦ Degree in Medicine and Surgery from the University of Santiago de Compostela
- ♦ Member of: Spanish Society of Urology, European Association of Urology and Endourological Society

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- ♦ Specialist in Urology at the Gregorio Marañón University Hospital
- ♦ Urologist at Zarzuela Hospital
- ♦ Medical expert in Urology at HM Torrelodones Hospital
- ♦ Specialist in Laparoscopic, Thoracoscopic and Robotic Surgery
- ♦ Physician at Nuestra Señora del Rosario University Hospital
- ♦ Residency in Urology at Puerta de Hierro Hospital in Majadahonda
- ♦ PhD in Health Sciences from the Complutense University of Madrid
- ♦ Master's Degree in Comprehensive Medical and Surgical Management of Renal Cancer from the University of Salamanca
- ♦ Master's Degree in Medical Expertise and Bodily Injury Assessment from the University of Alcalá
- ♦ Master's Degree in Health Research Methodology from the Autonomous University of Barcelona
- ♦ Master's Degree in Advanced Prostate Cancer from the University of Salamanca
- ♦ University Expert in Advanced Urological Surgery from the European University
- ♦ Bachelor's Degree in Medicine and Surgery from the University of Alcalá

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- ♦ Physician in the Lithiasis and Endourology Unit of the Jiménez Díaz Foundation University Hospital
- ♦ Expert in Advances in the Diagnosis, Treatment and Monitoring of Urothelial Carcinoma
- ♦ Specialist in 3D Bioprinting
- ♦ Residency in Urology at the University Hospital of Ciudad Real
- ♦ Master's Degree in Urologic Oncology from TECH University
- ♦ Degree in Medicine from Universidad San Pablo CEU
- ♦ Certification as a Fellow of the European Board of Urology

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- ♦ Urology Specialist at San Cecilio Hospital
- ♦ Urologist at the University Hospital of Jaén
- ♦ Expert in Family and Community Medicine
- ♦ Specialist in Urologic Oncology and Robotic Surgery
- ♦ Clinical Researcher
- ♦ Urology Internship at San Cecilio University Hospital in Granada
- ♦ Residency in Urology at the Virgen de las Nieves Hospital
- ♦ PhD in Medicine from the University of Granada
- ♦ Master's Degree in Advanced Prostate Cancer from the University of Salamanca
- ♦ Master's Degree in Metastatic Renal Cancer from the University of Salamanca
- ♦ Master's Degree in Andrology and Reconstructive Surgery from the University of Salamanca
- ♦ Bachelor's Degree in Medicine and Surgery from the University of Granada

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- ♦ Urology Specialist at the San Marcos Clinical Hospital
- ♦ Physician at the De la Peña, Hidalgo y Alonso Institute of Urology
- ♦ Urologist at the Clinical Hospital San Marcos
- ♦ Physician at Príncipe de Asturias University Hospital
- ♦ Physician at Gómez Ulla Central Defense Hospital
- ♦ Specialist in Endourology, Laparoscopic Surgery and Robotics
- ♦ Endourology Internship at IRCSS Ospedale San Raffaele Turro
- ♦ Robotic Surgery and Holmium Laser Internship at the Medical University of Graz
- ♦ Urology Residency at Príncipe de Asturias University Hospital
- ♦ Bachelor of Medicine from the Austral University of Buenos Aires

Dr. Cogorno Wasylkowski, Leopoldo

- ♦ Urology Specialist at La Princesa University Hospital
- ♦ Urologist at Infanta Sofía University Hospital
- ♦ Doctor at Nuestra Señora del Rosario Hospital
- ♦ Physician at LYX Urology
- ♦ Urologist at HM Torrelodones University Hospital
- ♦ Specialist in Urological Oncology
- ♦ Expert in Laparoscopic Surgery, Thoracoscopy and Robotics
- ♦ Residency in Urology at the Santa Bárbara Hospital in Soria
- ♦ Master's Degree in Advanced Prostate Cancer from the University of Salamanca
- ♦ Master's Degree in Comprehensive Management of Localized, Advanced and Metastatic Renal Cancer
- ♦ Bachelor's Degree in Medicine and Surgery from the Central University of Venezuela
- ♦ Certification as a Fellow of the European Board of Urology
- ♦ Member of European Association of Urology

Dr. Cadillo-Chávez, Ronald

- ♦ Physician and Surgeon at the Center for Advanced Urology and Robotic Surgery
- ♦ Surgeon at the Edgardo Rebagliati Martins National Hospital
- ♦ Expert in Robotics, Oncology and Reconstructive Surgery
- ♦ Peruvian Marine Corps doctor
- ♦ Researcher in the Kidney Transplant Program
- ♦ Urology Residency at the Puerto Rico College of Medicine
- ♦ PhD in Medicine and Surgery from the National University of San Marcos
- ♦ Master's Degree in Urology from the National University of San Marcos
- ♦ Master's Degree in General Surgery from the University of Puerto Rico

Dr. Abad López, Pablo

- ♦ Physician in the Department of Urology at La Paz University Hospital
- ♦ Urologist at San Carlos Clinical Hospital
- ♦ Specialist in the treatment of renal, adrenal and retroperitoneal carcinoma
- ♦ Coordinator of the 4Doctors platform
- ♦ Editor of the scientific journal "Frontiers in Urology"
- ♦ Editor of the scientific journal *"Archivos Españoles de Urología"*
- ♦ Editor of the scientific journal "Urology Research and Practice"
- ♦ Creator of digital content for the Urology Cheat Sheets platform
- ♦ Residency in Urology at the 12 de Octubre University Hospital
- ♦ Master's Degree in Clinical Practice and Medical Professionalism from the University of Alcalá de Henares
- ♦ Master's Degree in Urooncology from the CEU - Cardenal Herrera University
- ♦ Master's Degree in Advanced Urinary Incontinence Surgery from the Complutense University of Madrid
- ♦ Master's Degree in Multidisciplinary Approach to Prostate Cancer from the Complutense University of Madrid
- ♦ Degree in Medicine from the Complutense University of Madrid

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- ♦ Urology Specialist at Dr. Balmis General University Hospital
- ♦ Expert in Resuscitation and Pain Therapy
- ♦ Specialist in Anesthesiology and Resuscitation at Dr. Balmis University General Hospital
- ♦ Clinical Researcher
- ♦ Degree in Medicine from the University of Castilla-La Mancha

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- ♦ Urologist specialized in Laparoscopy, Robotic Surgery, Urologic Oncology and Renal Transplantation at the Nuestra Señora del Rosario Hospital of Madrid
- ♦ Specialist in Urology, HU Puerta de Hierro Majadahonda
- ♦ Specialist in Urology, University Hospital Madrid Torrelodones
- ♦ Urologist Responsible for the Laparoscopic Surgery Program at the San Carlos Clinical Hospital
- ♦ Specialist in Renal and Pancreatic Transplants at the National Institute of Transplantation in Los Angeles (USA).
- ♦ Doctor of Medicine and Surgery from the Autonomous University of Madrid
- ♦ Bachelor's Degree in Medicine from the Autonomous University of Madrid
- ♦ Master's Degree in Medical Management and Clinical Management by the UNED
- ♦ University Expert in e-learning 2.0, e-learning and on-line training

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- ♦ Physician in the Department of Urology, Kidney Transplantation and Lithiasis at the Puigvert Foundation
- ♦ Urology Physician at the Sant Jaume Regional Hospital in Calella
- ♦ Clinical Researcher
- ♦ Urology Consultant at the Asepeyo Clinic
- ♦ Urology Residency at the Puigvert Foundation
- ♦ Degree in Medicine and Surgery from the Cayetano Heredia University of Peru
- ♦ Certification as a Fellow of the European Board of Urology
- ♦ Member of: European Association of Urology and Spanish Association of Urology

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- ♦ Specialist in Lithiasis, Endourology and Functional Pathology in Clinical Urology Bilbao
- ♦ Doctor in the Urology Department at Cruces University Hospital
- ♦ Urologist at Galdakao-Usánsolo Hospital
- ♦ Specialist in Advanced Renal Surgery
- ♦ Residency in Urology at Cruces University Hospital
- ♦ PhD in Medicine and Surgery from the Central University of Venezuela
- ♦ Master's Degree in Update in Urological Surgery from the Cardenal Herrera University
- ♦ University Expert in Lower Urinary Tract Surgery from the Cardenal Herrera University
- ♦ Certification as a Fellow of the European Board of Urology

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- ♦ Urologist at the Balearic Islands Health Service
- ♦ Urologist at the University Hospital of Burgos
- ♦ Clinical Researcher
- ♦ Residency in Urology at Getafe University Hospital
- ♦ Degree in Medicine and Surgery from the Central University of Barcelona

Dr. Serrano Frango, Patricia

- ♦ Specialist in Urology at the Reina Sofia Hospital
- ♦ Specialist in Lithiasis and Endourology at the Miguel Servet University Hospital
- ♦ Evaluator for the Accreditation Committee of the Health Professions Commission of Aragon
- ♦ Clinical Researcher
- ♦ Doctor of Health Sciences from the University of Zaragoza
- ♦ Bachelor of Medicine and Surgery

Dr. Guimerá García, Jordi

- ♦ Medical Director of the Urology Clinic of Dr. Guimerá
- ♦ Specialist in Urology at Son Espases University Hospital
- ♦ Occupational Physician at Asepeyo
- ♦ Internship at the Miami Transplant Institute
- ♦ Urology residency at the Son Espases University Hospital
- ♦ PhD in Public Health and Prevalent Diseases from the University of the Balearic Islands
- ♦ Degree in Medicine from the Autonomous University of Madrid
- ♦ Certification as a Fellow of the European Board of Urology

Dr. Mainez Rodríguez, Juan Antonio

- ♦ Urologist at La Paz University Hospital
- ♦ Director of International Cooperation of the Spanish Association of Urology
- ♦ Urologist at La Milagrosa Hospital
- ♦ Clinical Researcher
- ♦ Internship in Lithiasis and Endourology at Bautista Hospital Medical Center
- ♦ Urology Residency at Río Hortega University Hospital
- ♦ Bachelor of Medicine from the Complutense University of Madrid
- ♦ Member of the European Society of Urology

Dr. Millán Ramos, Irene

- ♦ Urologist at San Cecilio University Hospital
- ♦ Family Doctor at Albayda La Cruz Center
- ♦ Clinical Researcher
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- ♦ Degree in Medicine from the University of Granada

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- ♦ Director of the Urologic Oncology Unit at the University Hospital of Burgos
- ♦ Head of the Bladder Cancer Chemotherapy and Immunotherapy Area at the University Hospital of Burgos
- ♦ Urologist at the Río Carrión Hospital in Palencia
- ♦ Urology Consultant at the University Hospital of Burgos
- ♦ Specialist in Advanced Prostate Cancer Consultation
- ♦ Urology Residency at the University Hospital of Valladolid
- ♦ Master's Degree in Urologic Oncology
- ♦ Bachelor of Medicine and Surgery from the University of Valladolid

Dr. Zambudio Munuera, Alberto

- ♦ Urology Physician at the San Cecilio Clinical University Hospital
- ♦ Clinical Researcher
- ♦ Urology Residency at the San Cecilio Clinical University Hospital
- ♦ Master's Degree in Integration of Medical Knowledge and Application to Clinical Problem Solving
- ♦ Degree in Medicine from the University of Murcia

Dr. Verri, Paolo

- ♦ Physician in the Department of Urology and Lithiasis at the Puigvert Foundation
- ♦ Urology Physician at the San Luigi Sanatorium
- ♦ Clinical Researcher
- ♦ Residency in Oncology and Renal Transplantation at the Puigvert Foundation
- ♦ PhD in Medicine and Surgery from the University of Brescia

Dr. Sanz del Pozo, Mónica

- ♦ Urologist at Miguel Servet University Hospital
- ♦ Physician at Quirón Zaragoza Clinic
- ♦ Pelvic Floor Specialist
- ♦ Lithiasis Residency at Puigvert Foundation
- ♦ Internship in Laparoscopy and Pediatric Surgery at the University Hospital Complex of Pontevedra
- ♦ PhD in Health Sciences from San Jorge University
- ♦ Master's Degree in Urologic Oncology from CEU Cardenal Herrera University
- ♦ Master's Degree in Clinical Medicine from Camilo José Cela University
- ♦ Degree in Medicine and Surgery from the Complutense University of Madrid

Dr. Fernández Duque, Alicia

- ♦ Physician at the University Hospital Complex of Santiago de Compostela
- ♦ Specialist in Urology
- ♦ Clinical Researcher
- ♦ Residency in Internal Medicine at the University Hospital Complex of Santiago de Compostela
- ♦ Degree in Medicine from the University of Navarra

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- ♦ Urologist at Dr. Balmis General University Hospital
- ♦ Specialist in Urology
- ♦ Clinical Researcher
- ♦ Residency in Urology at Dr. Balmis General University Hospital
- ♦ Degree in Medicine from the University of Castilla-La Mancha

Dr. Mendiola López, Alberto

- ♦ Orthopedic Surgeon and Traumatologist at HM Rosaleda Hospital
- ♦ Urologist at the General University Hospital of Alicante
- ♦ Clinical Researcher at the Institute of Health and Biomedical Research in Alicante
- ♦ Expert in Computer-Assisted Deformity Correction
- ♦ Specialist in Advanced 3D Printing for Bioreplicas
- ♦ Internship at La Paz Hospital
- ♦ Internship at Mayo Clinic
- ♦ Internship at Leeds Hospital
- ♦ Residency in Traumatology and Orthopedic Surgery at Hospital 12 de Octubre
- ♦ PhD in Medicine and Surgery from the University of Santiago de Compostela
- ♦ Official Master's Degree in Research in Clinical and Surgical
- ♦ Medicine from the Miguel Hernández University
- ♦ Master's Degree in Clinical Medicine from the Madrid Open University
- ♦ Degree in Medicine and Surgery from the University of Santiago de Compostela
- ♦ Internship at the Wolf Institute and Charité

Dr. González Martín, Enrique

- ♦ Urologist at Río Hortega University Hospital
- ♦ Specialist in Urology
- ♦ Clinical Researcher
- ♦ Expert in Cadaver Dissection
- ♦ Laparoscopy Internship at La Fe University and Polytechnic Hospital
- ♦ Urology Residency at Río Hortega University Hospital
- ♦ Degree in Medicine from the Complutense University of Madrid

Dr. Sureda Riera, Joan

- ♦ Urologist at the Hospital of Manacor
- ♦ Surgical SAP Instructor at the Clinical Hospital of Barcelona
- ♦ Specialist in Advanced Prostate Cancer Management
- ♦ Residency in Reconstructive Urology at the Urological Institute of London
- ♦ Master's Degree in Localized, Advanced and Metastatic Prostate Cancer from the University of Salamanca
- ♦ Master's Degree in Research Design and Analysis in Health Sciences from the Autonomous University of Barcelona
- ♦ Degree in Medicine and Surgery from the University of Barcelona
- ♦ Certification as a Fellow of the European Board of Urology
- ♦ Member of the Spanish Society of Radiation Oncology

Dr. Romero Jiménez, Alma María

- ♦ Surgical Nurse at the Hospital of Manacor
- ♦ Surgical Nurse at the Hospital Son Espases
- ♦ Surgical Nurse at the Hospital Son Llatzer
- ♦ Surgical Nurse at the Hospital Llevant
- ♦ Instrumentalist Nurse at Palex Medical
- ♦ Neurosurgery Instrumentalist Nurse at Vithas Sevilla Hospital
- ♦ Expert in Oxygen Therapy and Mechanical Ventilation for critical patients
- ♦ Master's Degree in Pharmacotherapy for Nursing from the University of Valencia
- ♦ University Expert in Emergencies and Urgencies from the Open University of Madrid
- ♦ University Expert in Minor Surgery for Nursing from the Pablo de Olavide University
- ♦ Diploma in Nursing

Dr. González Lara, Diego Mauricio

- ♦ Urologist at Dr. Balmis General University Hospital
- ♦ Nephrology Physician at Toledo University Hospital Complex
- ♦ Urology Residency at Dr. Balmis General University Hospital of Alicante
- ♦ Degree in Medicine and Surgery from the Universidad Mayor de San Simón

Dr. Manso Aparicio, Coral

- ♦ Urologist at Río Hortega University Hospital
- ♦ Urologist at Grupo Recoletas
- ♦ Specialist in Endourology and Lithiasis
- ♦ Expert in Laparoscopic and Robotic Surgery
- ♦ Clinical Researcher
- ♦ Residency in Urology at the Río Hortega University Hospital
- ♦ Degree in Medicine from the University of Valladolid

Dr. Martínez Siquier, Lidia

- ♦ Robotic Surgical Nurse at Quirónsalud Rotger Clinic
- ♦ Adult and Pediatric Hospitalization Nurse at Quirónsalud Rotger Clinic
- ♦ Day Hospital and Oncology Nurse at Quirónsalud Rotger Clinic
- ♦ Advanced Life Support Specialist
- ♦ Expert in Innovation in Operating Room and Sterilization Management
- ♦ Laparoscopic and Robotic Surgery Specialist
- ♦ Degree in Nursing from the University of the Balearic Islands

08 Certificate

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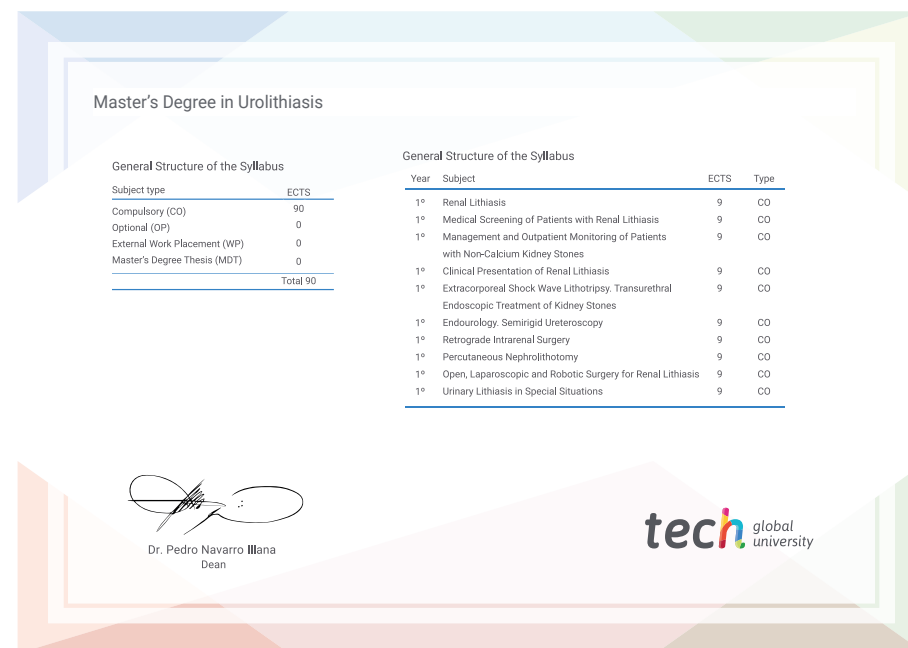
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