



# Postgraduate Certificate

Technical and Organizational Aspects of the Diagnostic Process in Sleep-Wakefulness Disorders

» Modality: online

» Duration: 6 weeks

» Certificate: TECH Technological University

» Dedication: 16h/week

» Schedule: at your own pace

» Exams: online

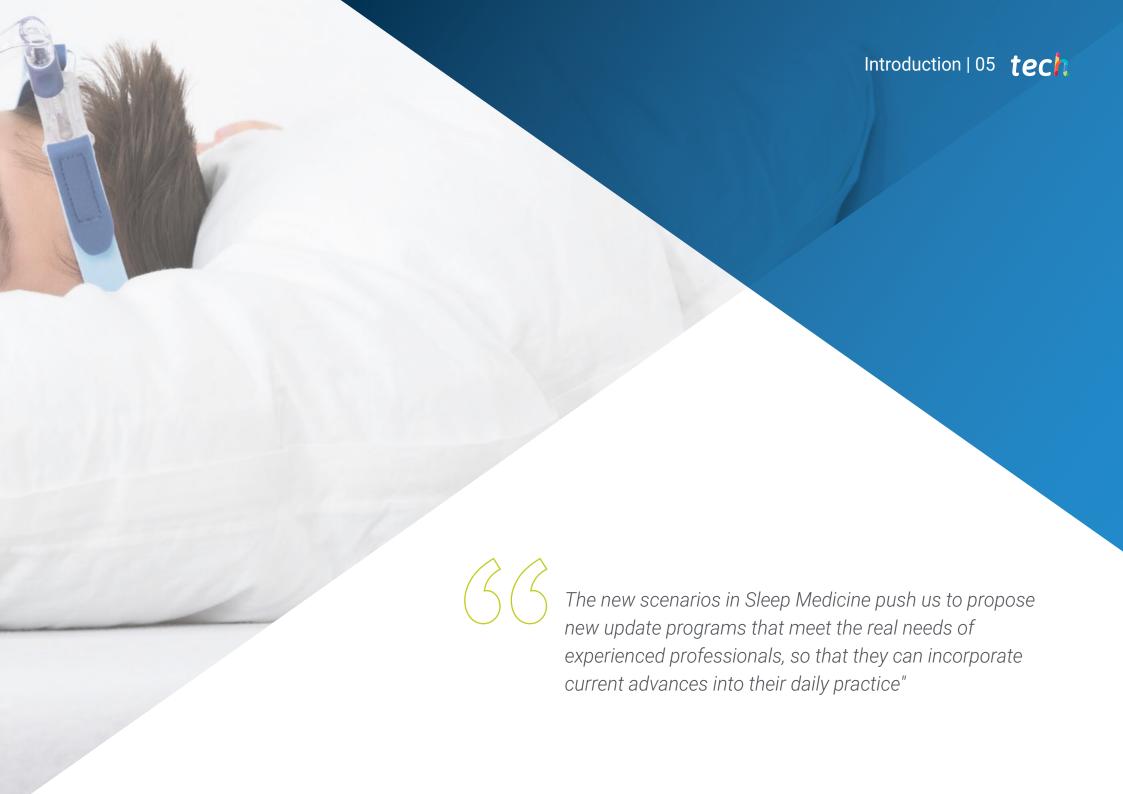
Website: www.techtitute.com/us/medicine/postgraduate-certificate/technical-organizational-aspects-diagnostic-process-sleep-wakefulness-disorders

# Index

> 06 Certificate

> > p. 32





# tech 06 | Introduction

There is a growing multidisciplinary interest in Sleep Medicine, a discipline in frank expansion, whether it is approached from a global point of view or from the "partial specialization", depending on the original health field or specific area of interest, in all cases, a rigorous and updated generic knowledge in all its fields is vital. This Postgraduate Certificate' more than fulfils this objective from an eminently practical point of view. Its approach sets it apart from many other programs on this very transverse discipline, which are often criticised for being too "descriptive" and "theoretical", and therefore not entirely useful in resolving many situations that arise in clinical management.

In this program, the student will become familiar with the different techniques available, from the simplest, in which very few parameters are recorded on an outpatient basis, to the more complex tests, often necessary, which provide much more information, are more expensive and usually require hospital registration. You will acquire skills in recording, analyzing, coding and interpreting such evidence with the invaluable aid of appropriate graphical methods. It includes specific chapters on innovative techniques, such as integrated systems and chronosensors, for the study of circadian disturbances, which provide a novel approach to sleep disorders. It is also intended that the student integrates, from an organizational point of view, sleep techniques performed at the local level, in the multidisciplinary and multisectoral level, which is where sleep medicine is currently located.

With the clear objective of combining scientific evidence and practical utility, this Diploma in Technical and Organizational Aspects of the Diagnostic Process in Sleep-Wakefulness Disorders has a broad, updated and unbeatable program, prepared by a varied team of professional experts (physicians, psychologists, biologists, engineers, etc.), who provide their proven experience in the form of explanations, entertaining and clarifying practical examples, abundant graphic-audiovisual support, absolutely essential in the teaching of this thriving discipline.

In addition, this program's degree has the advantage of being developed in a 100% online format, so students will be in charge of deciding when and where to study, distributing their study hours to suit them, so that they can combine their studying with the rest of their daily commitments.

This Postgraduate Certificate in Technical and Organizational Aspects of the Diagnostic Process in Sleep-Wakefulness Disorders contains the most complete and up-to-date program on the market. The most important features include:

- Developing practical cases presented by experts in Sleep Medicine
- The graphic, schematic, and practical contents provide students with scientific and practical information on the disciplines that are essential for professional practice
- Updates on Sleep Medicine and safety
- Practical exercises, where the self-assessment process can be carried out to improve learning
- Emphasis on innovative methodologies in Sleep Medicine
- 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



We offer a complete program for you to develop in the field of Technical and Organizational Aspects of the Diagnostic Process in Sleep-Wakefulness Disorders. Think no more and enrol with us"

### Introduction | 07 tech



This Postgraduate Certificate is the best investment you can make in selecting a refresher program to update your knowledge in Technical and Organizational Aspects of the Diagnostic Process in Sleep-Wakefulness Disorders"

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

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

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

We offer you an interactive video system which makes it easier for you to study this Postgraduate Certificate.

Our 100% online specialization and our original educational methodology allow you to combine your studies with your other daily commitments.







Our main objective is to help our students to achieve academic and professional excellence"

# tech 10 | Objectives



# **General Objective**

 Master and/or update the necessary skills and knowledge for adequate practice in the field of Sleep Medicine at a global level, from the clinical and instrumental points of view



Train yourself for success with the help of this Diploma with which you will learn to develop yourself in the field of Technical and Organizational Aspects of the Diagnostic Process in Sleep-Wakefulness Disorders"



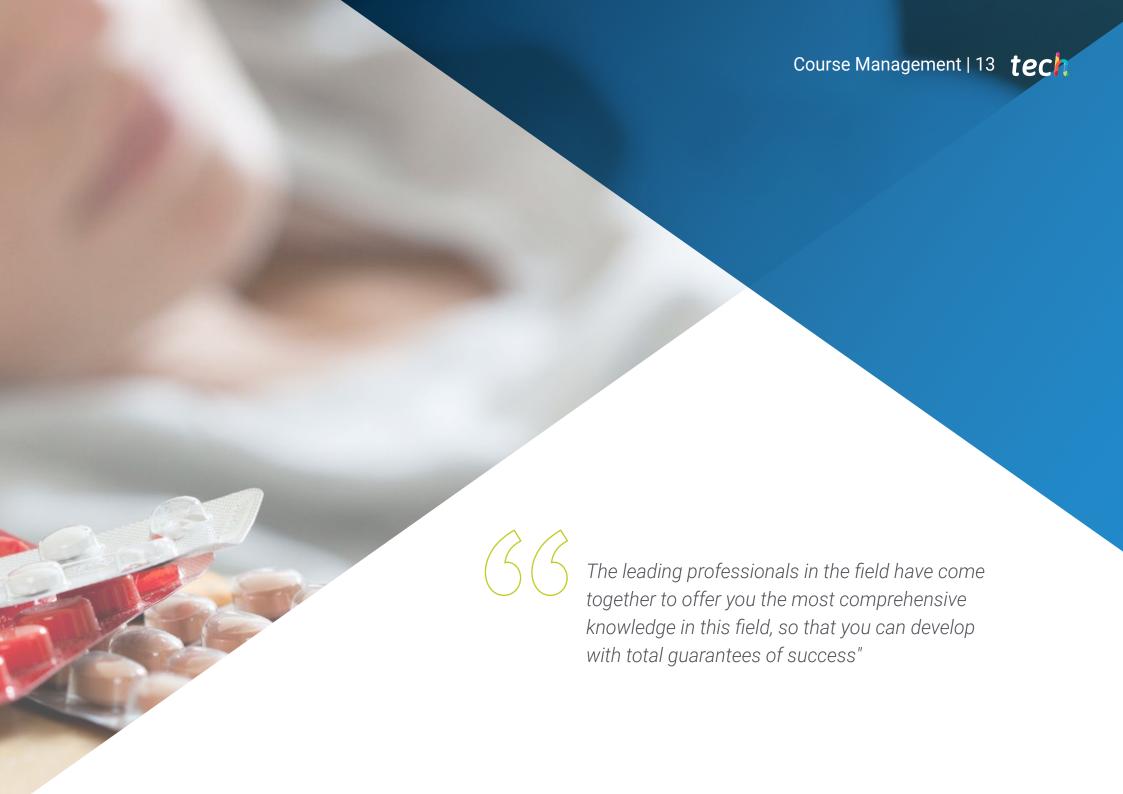


#### **Specific Objectives**

- Gain a deep understanding of which biological parameters are of interest in the different sleep recordings, how they can be recorded and how the sensors that monitor them work
- From the whole range of possible tests, you should acquire and master the skills to choose the most appropriate sleep test to be performed
- Gain the skills and understanding of the indications, recording, analysis and interpretation of all kinds of simplified systems in the diagnosis of sleep disorders
- Apply knowledge and skills on the indications, recording and practical problem solving during the Polysomnography (PSG) overnight sleep test, as a gold-standard sleep study technique
- Includes the acquisition of specific skills and training to perform analysis and interpretation of the sleep structure and all types of recorded events, as well as training to understand and evaluate external log reports
- Specialise in the current indications for PSG and learn when to extend or complement this test with a wide range of complementary elements
- Master the skills to implement and interpret additional instrumental tests to support the diagnosis in cases of daytime hypersomnolence or restless leg syndrome
- Gain a deep understanding of new ways of dealing with sleep disorders, through monitoring with sensors or with alternative systems different to the classic ones

- Some of them through wireless systems, pulse transit sensors, or the use of microwave sensors aimed at reducing the complexity of existing tests Others such as circadian monitoring with chronosensors, in order to record fundamental parameters for the diagnosis of sleep disorders, which classical tests do not cover
- Emphasise the importance of image and sound recording in sleep studies
- Define theoretical knowledge of how the bioelectrical signal can be analysed with software integrated in the devices, in order to , be able to programme the different diagnostic devices and to use the tools that each one of them puts at our disposal
- Specialise in how a sleep unit is organised at different levels of care For this, the student will learn the different cycles for prevalent or specific sleep pathologies, which optimise resources and integrate the entire care process





# tech 14 | Course Management

#### **International Guest Director**

Dr. Craig Canapari is an eminent specialist in **Pediatric Pulmonology and Sleep Medicine**. He has been internationally recognized for his commitment to the study and treatment of sleep disorders in children, as well as his work in the field of **pulmonary diseases**. Throughout his extensive professional career, Dr. Canapari has had an outstanding praxis focused on treating pediatric patients with chronic and life-threatening respiratory diseases.

As director of the Pediatric Sleep Medicine Program at Yale-New Haven Children's Hospital,
Dr. Canapari has been dedicated to the management of various disorders such as Sleep Apnea
and Obstructive Sleep Apnea. He also treats those suffering from general pulmonary problems,
including cough, shortness of breath and asthma, as well as those suffering from Muscular
Dystrophy. In this field, he is noted for his interdisciplinary approach, combining Pneumology,
Neurology and Psychiatry in the research and treatment of these complex disorders.

In addition to his clinical expertise, Dr. Canapari is a celebrated researcher who has collaborated with other Harvard professionals to develop innovative tools, such as a smart phone application to assist parents in sleep training. His tireless efforts have also focused on how the use of CPAP machines can help children with Obstructive Sleep Apnea improve their quality of life. His in-depth knowledge in this area has led him to publish the book It's Never Too Late to Sleep Train: The Low-Stress Way to High-Quality Sleep for Babies, Kids, and Parents.

To this must be added his exceptional work as an Assistant Professor of **Pediatrics**, specializing in **Respiratory Medicine**, at the **Yale School of Medicine**. There he contributes to both clinical care and the training of future **pediatric** and **pediatric pulmonology professionals**.



# Dr. Canapari, Craig

- Director of the Pediatric Sleep Medicine Postgraduate Certificate Program at Yale-New Haven Children's Hospital
- Attending Physician in Pediatric Pulmonology and Sleep Medicine at Yale-New Haven Children's Hospital
- Assistant Professor of Pediatrics, Respiratory Medicine, Yale School of Medicine, Yale University School of Medicine
- Doctor of Medicine, University of Connecticut School of Medicine
- Specialist in Pediatric Pulmonology and Sleep Medicine



#### Management



#### Dr. Larrosa Gonzalo, Óscar

- Specialist in Clinical Neurophysiology, San Rafael Hospital
- Expert in Sleep Medicine (CEAMS accredited, first national exam, 2013)
- Coordinator and founder of the Sleep Medicine Unit of MIPsalud, Madrid. Specialist and clinical consultant in sleep medicine at the Center of Neurological Diseases in Madrid and at the Multidisciplinary Unit for Sleep Disorders in San Rafael Hospital in Madrid, Spain
- Member of the Spanish Sleep Society (SES), founding member and former coordinator of its working group on Sleep Behaviour and Behavioural Disorders
- Member of the Spanish Society of the Neurophysiology Clinic (SENFC), founding member and former coordinator of its working group on sleep disorders
- Honorary Member, medical advisor and recommended specialist of the Spanish Restless Legs Syndrome Association (AESPI)
- Director of the Online Course "RESTLESS LEGS SYNDROME (WILLIS-EKBOM DISEASE)", (AESPI/Information without borders) for healthcare professionals, July 2016 July 2017

#### **Professors**

#### Dr. García de Gurtubay Gálligo, Iñaki

- Specialist in Clinical Neurophysiology. Doctorate in Medicine
- Expert in Sleep Medicine (CEAMS accreditation, 2013)
- Head of the Clinical Neurophysiology Service and Head of the multidisciplinary sleep pathology unit of CHN-SNS, Pamplona, Spain
- Lecturer and tutor of the practical side of the Professional Master's Degree in Biomedical Engineering of the ETS of Industrial and Telecommunication Engineering of the Public University of Navarra (UPNA)
- Member of the Spanish Society of the Neurophysiology Clinic (SENFC), founding member and former coordinator of its working group on sleep disorders
- Member of the Spanish Sleep Society (SES), founding member and former coordinator of its working group on movement and behavioural disorders during sleep
- Project Consultant as Biomedical Technology Expert at the Carlos III Health Institute
- Member of the Medical Technologies Assessment working group of the International Federation of Clinical Neurophysiology (IFCN)
- Medical Advisor to Walden Medical Neurodigital Therapies
- Member of the Neurophysiology of brain rhythms, epilepsy and sleep research group of the Navarra Health Research Institute-IdISNA
- Member of the Sociotechnology for Innovation in Health Group

#### Dr. Rodríguez Falces, Javier

- Telecommunications Engineer
- Interim Professor, Department of Electrical and Electronic Engineering, Public University of Navarra
- D. in communication engineering

#### Dr. Ciorba Ciorba, Cristina

- Physician specializing in Pneumology
- Multidisciplinary sleep unit. Navarra Hospital Complex. Pamplona
- Master's Degree in Advances in Diagnosis and Treatment of Sleep Disorders

of the University of Murcia

- Master's Degree in Neuromuscular Diseases and Respiratory Complications, University of Versailles, Paris
- Expert in Sleep Medicine. Accredited by FESMES
- Expert in Non-Invasive Mechanical Ventilation by the International School of NIMV
- Member of the Spanish Sleep Society, Spanish Society of Pneumology and Thoracic Surgery, and the European Respiratory Society

#### Dr. Jiménez Setuain, Izaskun

- Physician specializing in Pneumology
- Multidisciplinary sleep unit. Navarra Hospital Complex. Pamplona
- Member of the Spanish Society of Pneumology and Thoracic Surgery and of the European Respiratory Society

#### Dr. Azcona Ganuza, Gurutzi

- Specialist in Clinical Neurophysiology
- Multidisciplinary Sleep Unit. Navarra Hospital Complex. Pamplona
- Director of Neuroscience and Cognition Master at Navarra Clinical University
- Member of the Spanish Society of Clinical Neurophysiology, the Association of Intraoperative Monitoring (AMINE) and the Spanish Society of Neurology (SEN)

# tech 18 | Course Management

#### Dr. Ramos-Arguelles Gonzalez, Fernando

- Specialist in Clinical Neurophysiology
- Clinical Neurophysiology Service and Sleep Rotger-Grupo Sleep Clinic Quironsalud Baleares. Mallorca
- Member of the Spanish Society of Clinical Neurophysiology, and the Spanish Sleep Society

#### Dr. Pabón Meneses, Rocío

- Specialist in Clinical Neurophysiology
- Multidisciplinary sleep unit. Navarra Hospital Complex. Pamplona
- Expert in Sleep Medicine. Accredited by FESMES
- Member of the Spanish Society of Clinical Neurophysiology, and the Spanish Sleep Society

#### Dr. Pérez, Juan Antonio

- Graduate in Biological Sciences. D. in Physiology
- Specialist in Chronobiology, Pierre et Marie Curie University, Paris
- Professor of Physiology
- Director of the Chronobiology Laboratory, University of Murcia, IMIB-Arrixaca and CIBEREES
- Member of the Spanish Sleep Society and of its Chronobiology working group.
   Member of the Spanish Society of Physiological Sciences

#### Dr. Navallas Irujo, Javier

- Telecommunications Engineer
- Associate Professor, Department of Electrical, Electronic and Communication Engineering, Public University of Navarre
- D. in communication engineering

#### Dr. Rol de Lama, María Ángeles

- Degree in Biological Sciences, PhD, Universidad Complutense de Madrid
- Director of the Department of Physiology and Professor of the same, University of Murcia. Founding Partner of Kronohealth SL
- Member of the Committee of Experts of the Government of Spain for the study of the change of official time. Member of the IMIB Innovation Commission
- Member of the Spanish Sleep Society, Member its Chronobiology working group

#### Dr. Imizcoz, María Alfonso

- Physician specializing in Pneumology
- Multidisciplinary Sleep Unit. Navarra Hospital Complex. Pamplona
- PhD in Medicine and Surgery. Associate Professor, Public University of Navarra
- Expert in Sleep Medicine, (CEAMS/FESMES accreditation)
- Member of the Spanish Sleep Society and the Spanish Society of Pneumology and Thoracic Surgery

#### Dr. Rodríguez Ulecia, Inmaculada

- Head of Clinical Neurophysiology Service, University Hospital San Roque Meloneras, Maspalomas, Las Palmas (Canary Islands)
- Medical Specialist in Clinical Neurophysiology
- Master's Degree in Emergency Medicine and Catastrophes, Cardenal Herrera University







### tech 22 | Structure and Content

# **Module 1.** Technical and organisational aspects of the diagnostic process

- 1.1. Measurable Biological Parameters and Detection Sensors
  - 1.1.1. Types of Parameters and Their Registration Methods
  - 1.1.2. Selection of Parameters According to Diagnostic Suspicion
  - 1.1.3. General Protocol and the Selection of Which Test to Perform
- 1.2. Simplified Systems of Registration
  - 1.2.1. Relevance of the Simplified Systems
  - 1.2.2. Pulse Oximetry, Actigraphy and Activity Wristbands
  - 1.2.3. Abbreviated Systems and Respiratory Polygraphy
- 1.3. Polysomnography (PSG): the Apparatus and Signal Acquisition
- 1.4. Polysomnography (PSG): Analysis, Coding and Interpretation (I)
  - 1.4.1. Analysis and coding of the Sleep Phases in Adults Hypnogram
  - 1.4.2. Analysis and Coding of the Sleep Phases in Childhood
  - 1.4.3. Analysis and Coding of Cardiac Activity
- 1.5. Polysomnography (PSG): Analysis, Coding and Interpretation (II)
  - 1.5.1. Coding of Respiratory Events and Their Interpretation
  - 1.5.2. Analysis and Coding of Motor Events
  - 1.5.3. Analysis of Other Signs
  - 1.5.4. Joint Interpretation and Reporting
- 1.6. Polysomnography (PSG): Indications and Extended PSG
- 1.7. Other Sleep and Wakefulness Tests
  - 1.7.1. Evaluation of tiredness
    - 1.7.1.1. Multiple Latency Sleep Test-TLMS
    - 1.7.1.2. Maintenance of Wakefulness Test-TMV
  - 1.7.2. Suggested Immobilisation Test (SIT) and Variants (mSIT)
- 1.8. Alternative Systems of Integrated Monitoring
  - 1.8.1. Other Ways to Address Sleep Disorders
  - 1.8.2. Wireless Systems
  - 1.8.3. Pulse Transit Time (PTT) Systems
  - 1.8.5. Microwave Movement Sensors
  - 1.8.6. Image and Sound in Sleep Studies
- 1.9. Methods of Studying the Circadian System





### Structure and Content | 23 tech

- 1.10. Automised and Advanced Analysis of the Bioelectric Signal
  - 1.10.1. Concepts, Preparation and Analysis
  - 1.10.2. Analysis of Each Signal or Multichannel
  - 1.10.3. Algorithms for Cleaning, Artefact Detection and Detection of Specific Signals
  - 1.10.4. Learning and Classification Networks, Analytics Matching and Data Mining
- 1.11. Organisation of a Sleep Unit
  - 1.11.1. From Basic Units to Multidisciplinary Units Local, Multidisciplinary and Multi-Sectoral Integration
  - 1.11.2. The Patient as a Central Focus
  - 1.11.3. Sleep Nursing
  - 1.11.4. External Integration with Health Services and Support Units
  - 1.11.5. Supply Companies and Private Activity
  - 1.11.6. Accreditations for Centers and People
  - 1.11.7. Innovation and Resources Integration of Software, Networks and Servers Homebased Monitoring Systems



A unique, key, and decisive training experience to boost your professional development"





# tech 26 | Methodology

#### At TECH we use the Case Method

What should a professional do in a given situation? Throughout the program, students will face multiple simulated clinical cases, based on real patients, in which they will have to do research, establish hypotheses, and ultimately resolve the situation. There is an abundance of scientific evidence on the effectiveness of the method. Specialists learn better, faster, and more sustainably over time.

With TECH you will experience a way of learning that is shaking the foundations of traditional universities around the world.



According to Dr. Gérvas, the clinical case is the annotated presentation of a patient, or group of patients, which becomes a "case", an example or model that illustrates some peculiar clinical component, either because of its teaching power or because of its uniqueness or rarity. It is essential that the case is based on current professional life, trying to recreate the real conditions in the physician's professional practice.



Did you know that this method was developed in 1912, at Harvard, for law students? The case method consisted of presenting students with real-life, complex situations for them to make decisions and justify their decisions on how to solve them. In 1924, Harvard adopted it as a standard teaching method"

#### The effectiveness of the method is justified by four fundamental achievements:

- Students who follow this method not only achieve the assimilation of concepts, but also a development of their mental capacity, through exercises that evaluate real situations and the application of knowledge.
- 2. Learning is solidly translated into practical skills that allow the student to better integrate into the real world.
- 3. Ideas and concepts are understood more efficiently, given that the example situations are based on real-life.
- 4. Students like to feel that the effort they put into their studies is worthwhile. This then translates into a greater interest in learning and more time dedicated to working on the course.





#### Relearning Methodology

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

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

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



### Methodology | 29 tech

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

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

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

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

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

# tech 30 | Methodology

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



#### **Study Material**

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

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



#### **Surgical Techniques and Procedures on Video**

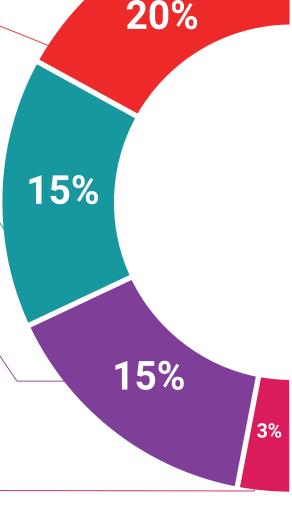
TECH introduces students to the latest techniques, the latest educational advances and to the forefront of current medical techniques. All of this in direct contact with students and explained in detail so as to aid their assimilation and understanding. And best of all, you can watch the videos as many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



#### **Interactive Summaries**

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

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





#### **Additional Reading**

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

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

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



#### **Testing & Retesting**

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



#### Classes

There is scientific evidence on the usefulness of learning by observing experts.

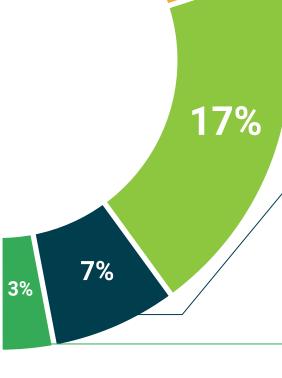
The system known as Learning from an Expert strengthens knowledge and memory, and generates confidence in future difficult decisions.



#### **Quick Action Guides**

TECH offers the most relevant contents of the course in the form of worksheets or quick action guides. A synthetic, practical, and effective way to help students progress in their learning.









### tech 34 | Certificate

This Postgraduate Certificate in Technical and Organizational Aspects of the Diagnostic in Process in Sleep-Wakefulness Disorders contains the most complete and up-to-date program on the market.

After the student has passed the assessments, they will receive their corresponding **Postgraduate Certificate** issued by **TECH Technological University** via tracked delivery\*.

The diploma issued by **TECH Technological University** will reflect the qualification obtained in the Postgraduate Certificate, and meets the requirements commonly demanded by labor exchanges, competitive examinations and professional career evaluation committees.

Title: Postgraduate Certificate in Technical and Organizational Aspects of the Diagnostic in Process in Sleep-Wakefulness Disorders

Official N° of Hours: 150 h.



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

health

guarantee

technological
university

# Postgraduate Certificate

Technical and Organizational Aspects of the Diagnostic Process in Sleep-Wakefulness Disorders

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

