Hybrid Professional Master's Degree

Update on Neurophysiological Diagnosis and Treatment

tech global university

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Hybrid Professional Master's Degree

Update on Neurophysiological Diagnosis and Treatment

Modality: **Hybrid (Online + Clinical Internship)**

Duration: **12 months**

Certificate: **TECH Global University**

60 + 5 créditos ECTS

Website: **www.techtitute.com/us/hybrid-professional-master-degree/hybrid-professional-master-degree-update-neurophysiological-diagnosis-treatment**

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01

Introduction

Science and technology are constantly innovating in the field of Neurophysiology to provide solutions to pathologies as diverse as sleep disorders, Parkinson's disease, brain tumors, among others. The constant updating of this health area has made it possible to have access to much more comprehensive intervention techniques and protocols with more promising results. At the same time, this permanent renewal sometimes makes it difficult for neurologists to access procedures and approach strategies. For this reason, TECH has designed a Semipresential Master's Degree, divided into a theoretical and a practical phase, which will allow the doctor to get up to date on the most modern trends in this field and how to apply them. A unique opportunity to learn by applying these new skills in real cases of varying complexity.

Learn This program as Latest Information to identify physiological and pathological from the point of view patterns, as well as their correlation with age, level of wakefulness/sleep, consciousness, pharmacological interference and clinical significance"

In recent years, the academic state of the art in Neurophysiology has multiplied exponentially thanks to numerous scientific research and technological advances. An example of this is the use of botulinum toxin for therapeutic infiltrations to relieve pain in patients with chronic pain. Therefore, it also highlights the application of non-invasive and invasive brain modulation procedures. Medical professionals dedicated to this area need constant updating and, paradoxically, they do not find teaching programs on the market that satisfy their theoretical and practical interests equally.

This is the first time that this TECH Semipresential Master's Degree has been offered to the physician, offering the latest developments in Neurophysiological Diagnosis and Treatment. The program goes beyond its market counterparts and consists of two distinct stages. The first one will facilitate the assimilation of ambitious from a 100% online and interactive learning platform. The neurologist will complete this educational phase in 1,500 hours and will be advised by a prestigious and demanding faculty.

In a second didactic moment, the graduate will spend 3 weeks in a face-to-face clinical practice in first level hospitals. From this institution, he will be able to apply in a practical way the subjects received in the previous stage in real patients with different neurological pathologies. In addition, they will be supervised by an assistant tutor who will be in charge of helping them in their progress and involving them in comprehensive assistance dynamics. Throughout this period, the physician will exchange with experts of distinguished trajectory within this health care sector and will be able to turn to them to clarify doubts and concepts of interest. In turn, you won't have to settle for local or regional training options. Thanks to the wide network of agreements and partners at TECH's disposal, the neurologist may choose to complete this intensive stay in hospitals located in different continents.

This **Professional Master' Hybrid in Update on Neurophysiological Diagnosis and Treatment** contains the most complete and up-to-date scientific program on the market. The most important features include:

- Development of more than 100 clinical cases presented by of the neurophysiology professionals with a highly qualified in Diagnosis and brain pathologies Psychotherapeutic treatment Psychopharmacological treatment.
- The graphic, schematic, and practical contents with which they are created, provide scientific and practical information on the disciplines that are essential for professional practice.
- Patient assessment and monitoring based on upper and lower limb nerve response according to the latest international recommendations on the subject
- Algorithm-, based interactive learning system for decision-making in the presented clinical situations.
- All of this will be complemented by theoretical lessons, questions to the expert, debate forums on controversial topics, and individual reflection assignments.
- Content that is accessible from any fixed or portable device with an Internet connection.
- Furthermore, you will be able to carry out a clinical internship in one of the best hospital centers

Thanks to TECH, you will delve into the latest diagnostic procedures and indications for brain stimulation of patients with epilepsy"

The 3-week intensive stay included in this degree can be carried out in prestigious centers located in different latitudes of the planet"

This Hybrid Professional Master's Degree will make you an expert in identifying pathologies such as Myasthenia Gravis, from electromyography and nerve conduction studies.

Enroll in TECH and you will learn more about how to prevent neuralgia or numbness in arms or legs through invasive neuromodulation.

In this proposed Master's program, of a professionalizing nature and blended learning modality, the program is aimed to up-to-date neurologists who wish to achieve a higher degree of qualification with respect to the handling of new equipment and techniques in this medical area. The contents are based on the latest scientific evidence, and oriented in a didactic way to integrate theoretical knowledge into medical practice, giving the professional the opportunity to have much more innovative work tools that facilitate the successful intervention of patients with various complexities.

Thanks to their multimedia content developed with the latest educational technology, they will allow the Medicine professional to obtain situated and contextual learning, i.e. a simulated environment that will provide immersive learning programmed to train in real situations. This program is designed around Problem-Based Learning, whereby the physician 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.

02

Why Study this Hybrid Professional Master's Degree?

Neurophysiology is currently facing numerous challenges and opportunities, such as its integration into multidisciplinary teams to address patients with different pathologies. Intraoperative Neurophysiological Monitoring, for example, has become an impressionable technique within hospital networks. This and other resources for the intervention of patients with brain diseases will be analyzed during this innovative degree.

This Hybrid Professional Master's Degree is distinguished by its up-to-date contents and, at the same time, by its ability to combine theoretical learning with a first-class intensive face-to-face stay in prestigious medical institutions.

With TECH, you will have access to prestigious hospitals and will be able to intervene in the Address of real patients with neurophysiological disorders of varying severity"

1. Updating from the Latest Technology Available

This Semipresential Master's Degree delves into the most innovative applications and procedures that can be performed with the equipment currently available in Neurophysiology. Through it, the medical professional will master the keys to complex techniques such as Electroencephalography, Electronystagmography, Evoked Potentials, among others.

2. Gaining In-depth Knowledge from the Experience of Top Specialists

Throughout this program, the physician will be accompanied at all times by leading experts. During the theoretical phase, you will work with a teaching staff of excellence and then, in the practical phase, you will work directly with neurologists who develop the contents of this degree in first level hospitals. In addition, you will have an assistant tutor who will guide your processes in a personalized way.

3. Entering First-Class Clinical Environments

TECH carefully selects all the centers that will be part of the practical stay integrated to this Hybrid Professional Master's Degree. These instances will guarantee the professional access to a prestigious clinical environment within the field of Neurophysiological Diagnosis and Treatment. In this way, they will be able to directly analyze the work dynamics of a Doctor demanding, rigorous and exhaustive area of nursing.

4. Combining the Best Theory with State-of-the-Art Practice

Few programs manage to combine theoretical and practical learning of its contents. However, that is not TECH's scenario. Professionals who opt for this Hybrid Professional Master's Degree will have the opportunity to acquire skills in both directions since the degree will apply all the contents studied online in a face-to-face and intensive stay of 3 weeks duration.

5. Expanding the Boundaries of Knowledge

To perform the professional internship of this Hybrid Professional Master's Degree, TECH offers centers of international importance. This way, the specialist will be able to expand their frontiers and catch up with the best professionals, who practice in first level in different latitudes. A unique opportunity that only TECH, the largest online university in the world, could offer.

You will have full practical immersion at the center of your choice"

03

Objectives

The Hybrid Professional Master's Degree in Neurophysiological Diagnosis and Treatment Update aims to provide students with an updated knowledge of the most innovative methodologies and tools for the Address of patients with neuropathologies. This educational program is superior to others of its kind in the market since the graduate develops theoretical and practical competencies within the same learning model. For this reason, the medical professional who completes this degree will immediately distinguish themselves in the labor market for their ability to face different problems within this sector of the hospital activity.

With this academic program, you will deepen in the international guidelines and protocols of Electroencephalogram in ICU and status epilepticus"

General Objective

- The goal of this degree is to provide the physician with a global and up-to-dated vision of Neurophysiological Diagnosis in its different training areas. At the same time, these competencies will allow you to homogenize useful criteria, following international standards. Generate within the student the desire in the graduate to broaden their skills and apply what has been learned to daily practice, to the development of new diagnostic indications and to research.

The correct development of Electromyography to detect diseases within the field of Neurolaryngology is one of the professional goals that you will achieve through this Semipresential Master"

Specific Objectives

Module 1. Brain Electrogenesis: Recording and Analysis Techniques Electroencephalogram Development

- Acquire the necessary knowledge of biophysical, analytical and technical fundamentals as a pillar for learning the genesis of graphoelements found in EEG recordings
- Look deeper into the development and chronobiology of electroencephalograms
- Learn how to identify physiological and pathological EEG patterns, as well as their correlation with age, level of wakefulness/sleep, consciousness, pharmacological interference and clinical significance
- Know how to locate abnormalities, spatio-temporal value, limitations and advantages of the technique. Identify artifacts and normal patterns that may mimic pathological graphoelements
- Become familiar with the methodology and application of quantified EEG

Module 2. Electroencephalogram (EEG) in Electroclinical Syndromes and Neurocritical Patients: Neurophysiological Precision Techniques in the Diagnosis and Treatment of Epilepsy

- Know how to diagnose electroclinical syndromes in all stages of life (specific patterns)
- Consolidate knowledge of electroencephalography applied to epilepsies, from the diagnostic phase to pharmacological, neuromodulatory and/or surgical therapeutic Address
- To up-to-date on national and international guidelines and protocols for electroencephalogram use in ICUs and status epilepticus Learn pattern identification and decision-making
- Delve deeper into the methodology and application of high density EEG and generator localization

Module 3. Evoked Potentials

- Take a deeper look at the bases for obtaining the different evoked potentials
- Decide upon the most appropriate techniques for the diagnosis of different pathologies
- Interpret the results derived from these techniques
- Have access to the international guidelines for performing evoked potentials
- Delve deeper into the most common programs used in designing appropriate paradigms to obtain cognitive evoked potentials
- Delve into the peculiarities and differences in the use of evoked potentials in pediatric and critical patient settings

Module 4. Neurophysiological Techniques in the Diagnosis of Neuromuscular Diseases

- Review the practical aspects and challenges of neurophysiological examinations: How to optimize equipment for different types of examinations?
- Delve into the different types of nerve conduction studies
- Understand the rationale and technique behind performing rare sensory and motor nerve conduction studies
- Become familiar with the physiological and non-physiological factors affecting the technical aspects of nerve conduction recording
- Learn the different technical aspects and clinical applications of specialized nerve conduction procedures, such as delayed responses and blink reflex
- Recognize normal and abnormal motor unit morphology and recruitment pattern
- Recognize the clinical utility of advanced EMG techniques
- Thoroughly understand the physiology and technical aspects underlying repetitive nerve stimulation (RNS) and jitter studies, single fiber and concentric needles, with hands-on demonstrations

- Ascertain how neuromuscular ultrasound complements conventional neurophysiologic assessment
- Use ultrasound for precise localization during botulinum toxin infiltration
- Review the evidence for instrumental guidance in muscle localization (EMG/ stimulation vs. ultrasound)

Module 5. Electroneuromyography (ENMG) Protocols in the Diagnosis of Neuromuscular Diseases

- Develop a logical approach to the conventional Update on Neurophysiological Diagnostic and Treatment techniques in the evaluation of focal or generalized neuromuscular disorders, neuromuscular junction disorders, including single fiber EMG
- Master the clinical and electrodiagnostic findings of focal neuropathies, plexopathies, cervical and lumbosacral radiculopathies.
- Use an electrodiagnostic approach for a broad spectrum of neuromuscular disorders, including myopathies, ALS, motor neuronopathies and polyneuropathies of different nature
- Perform a correct orientation to the neurophysiological findings in the diagnosis of motor plaque diseases and their clinical correlates
- Recognize specialized electrodiagnostic modalities
- Gain insight into the peculiarities of electroneuromyographic studies in pediatric patients and intensive care units

Module 6. Intraoperative Neurophysiological Monitoring

- Look deeper into the concepts of intraoperative neurophysiological techniques
- Have the necessary theoretical and practical knowledge of the interpretation of neurophysiological signals applied to surgical settings and anesthetized patients
- Recognize the importance of alarm values and their correlation with postoperative clinical changes
- Update on guidelines and protocols
- Acquire the ability to plan, perform and assess multimodal neurophysiological techniques applied to the different fields in surgical areas

Module 7. Autonomic Nervous System: Pain Other Complex Techniques

- Look deeper into the concepts of anatomy and physiology of the autonomic nervous system and its interconnections with the pathological processes of the central and peripheral nervous system
- Understand the implications of dysfunctions in the autonomic nervous system with respect to the rest of body systems
- Handle the main test batteries to determine the different dysautonomic affectations
- Reach an adequate diagnoses in the different processes of autonomic nervous system involvement
- Update the models of dysautonomia in relation to complex regional pain syndrome or maintained sympathetic dystrophy
- Determine the relation between autonomic nervous system and peripheral and central nervous systems with central sensitization in chronic pain models
- Acquire the ability for the assessment and functional evaluation of painful processes
- Learn different less widespread, little known and novel techniques, emphasizing their use in conjunction with other health professions in the context of interdisciplinary work

Module 8. Neurobiology and Physiology of Sleep: Methodological Aspects

- Deepen of the structure of normal sleep in all stages of life and its increasing number of known functions
- Update on physiological changes during sleep, the neurobiological bases of its cycles and the influence of drugs and substances on sleep
- To up-to-date on the chronobiological mechanisms of sleep-wake cycle regulation and methods of monitoring circadian rhythm disturbances in this cycle, including the most novel and emerging ones
- Acquire the fundamental technical, methodological knowledge of suitable recording sensors, quantification and interpretation, and practical and novel aspects in polysomnography
- Update and understand other polygraphic tests during sleep and wakefulness with respect to their implementation, Address and practical indications

Module 9. Clinical-Instrumental Diagnosis of Sleep Disorders

- Acquire skills for the diagnosis of insomnia, hypersomnias and circadian disturbances, through the integrated Address of data and clinical tools and instrumental tests
- To have the theoretical and practical knowledge essential for the clinical-instrumental diagnosis of respiratory disorders during sleep, from the most prevalent ones such as Apnea-Hypopnea Syndrome.
- Obstructive Sleep Disorders, to the more recently studied, subtle and novel, such as the syndrome of Increased Airway Resistance during sleep and other not so prevalent, but no less important, sleep-disordered breathing disorders, including the characterization of mixed pictures.
- Acquire clinical and instrumental skills in the diagnosis of parasomnias or behavioral disorders during sleep, both in adults and in childred, with a precise update on the latest concepts and pictures in the field (dissociative states, sexsomnias, eating behavior disorders during sleep, etc.)
- To up-to-date and know the diagnostic field for prevalent motor disorders during sleep and for epilepsy during sleep, including the implication and practical consequences of the not uncommon occurance two or more coexisting sleep disorders

Module 10. Neurophysiological techniques for therapeutic purposes, invasive and non-invasive neuromodulation. Botulinum toxin

- Provide a detailed understanding of the physiological basis of the different invasive and non-invasive brain stimulation techniques.
- Study in depth the most commonly used indications of the different invasive and non-invasive brain stimulation techniques.
- Acquire the neurophysiological basis of direct cortical stimulation and its specific indications in the treatment of drug-resistant chronic pain.
- Learn the protocols for the application of direct cortical stimulation in the treatment of drug-resistant chronic pain.
- Acquire the neurophysiological basis of spinal cord stimulation and its specific indications in the treatment of chronic pain and other applications.
- Learn the application protocols of spinal cord stimulation in the treatment of chronic pain.
- Know the role of neuromodulation in the field of epilepsy, as well as its diagnostic applications.
- Acquire the neurophysiological basis of brain stimulation in the diagnosis of epilepsy.
- Acquire the neurophysiological basis of brain stimulation in the treatment of epilepsy.
- Know the diagnostic indications of brain stimulation in epilepsy.
- Know the therapeutic indications of brain stimulation in epilepsy.
- Understand the role of deep brain stimulation (DBS) in Parkinson's disease (PD) and other movement disorders.
- Learn the physiological basis of deep brain stimulation (DBS).
- Learn the technique and clinical indications for DBS in Parkinson's disease and other movement disorders
- Know the basis and physiological effects of vagus nerve stimulation.
- Learn the technique and clinical indications of vagus nerve stimulation.
- Know the effect of vagus nerve stimulation in patients diagnosed with epilepsy.
- Know the physiological basis and effects of hypoglossal nerve stimulation.
- Learn the technique and clinical indications of hypoglossal nerve stimulation.
- Know the effect of hypoglossal nerve stimulation in patients diagnosed with OSAS.
- Know the basis and physiological effects of stimulation of other peripheral nerves such as the trigeminal, occipital, tibial and sacral nerves.
- Learn the techniques and clinical indications of trigeminal, occipital, tibial and sacral nerve stimulation.
- Understand the fundamentals and basics of how hearing implants work.

- Know the types of hearing implants: cochlear and brainstem.
- Learn the indications for hearing implant implantation
- Know the physiological basis of non-invasive brain stimulation.
- Learn the types of non-invasive brain stimulation: direct transcranial electrical stimulation (TES) and transcranial magnetic stimulation (TMS).
- Learn the indications for non-invasive brain stimulation
- Become familiar with the scientific evidence that supports noninvasive brain stimulation and learn the most applied therapeutic protocols
- Know the fundamentals, the basis of operation and the modalities of transcutaneous electrical nerve stimulation (TENS).
- Learn the indications, contraindications and effects of TENS.
- Know the mechanism of action of botulinum toxin.
- Learn the therapeutic and adverse effects of botulinum toxin.
- Learn the technique of botulinum toxin application with guidance by neurophysiological techniques in different dystonia such as cervical dystonia, blepharospasm, facial myokymias, oromandibular dystonia, upper extremity dystonia and trunk dystonia.
- Acquire theoretical knowledge (definitions, indications and implementation protocols), as well as training for the practical implementation of personalized neuromodulation therapies according to the indication of the clinical case and following clinical protocols.
- Understand neuromodulation therapies as an adjuvant treatment that is part of a multidisciplinary whole, and not as a treatment in exclusivity.

Delve into the most relevant theory in this field, subsequently applying it in a real work environment"

04

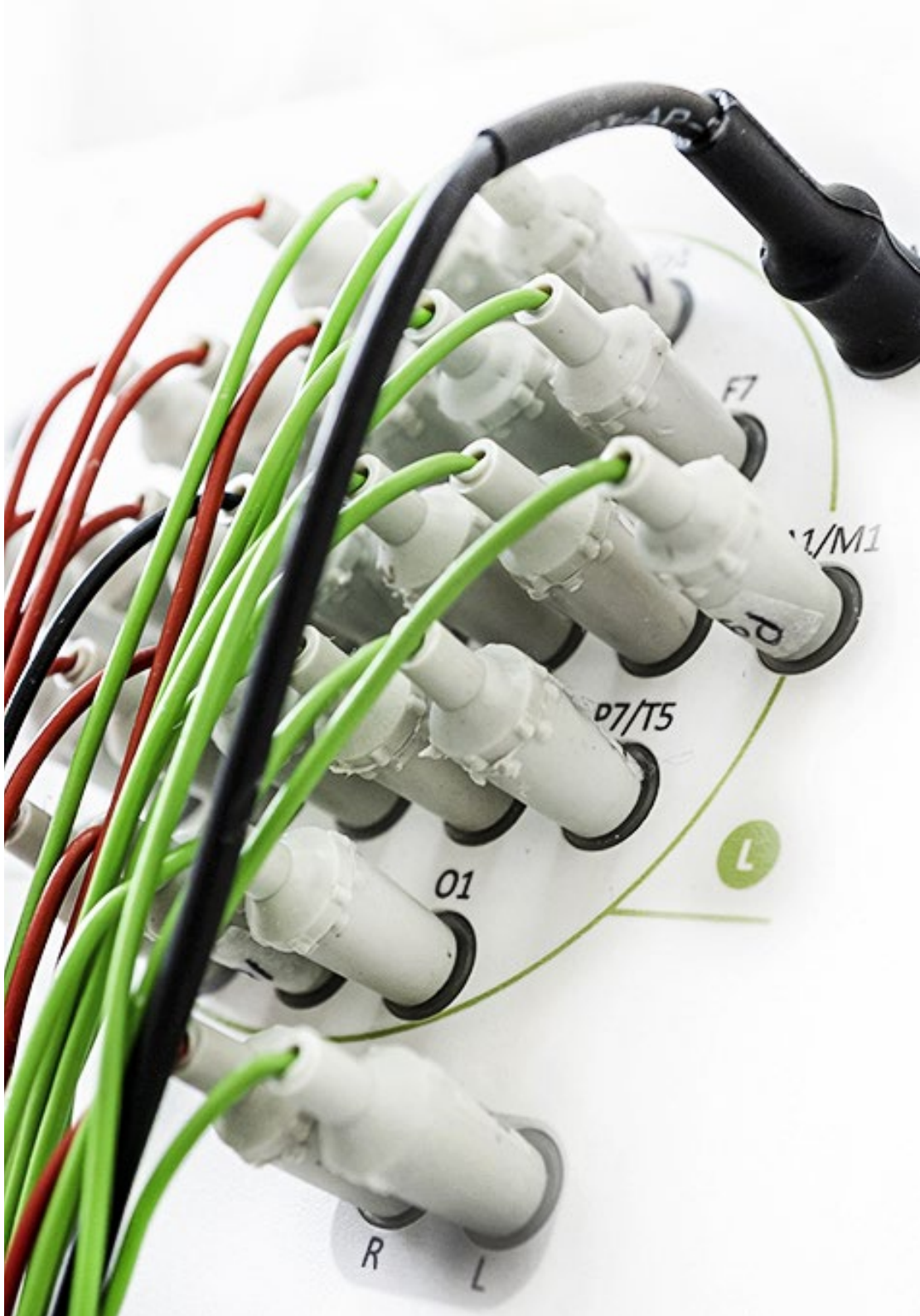
Competencies

Upon completion of both phases of this blended Master's program, the neurologist will have a broad capacity to apply innovative diagnostic methods and treatments to patients with different brain pathologies. These skills will be based on a deep theoretical and practical understanding of this medical area that is only accessible through TECH.

Through this degree, you will detect the causes of sleep disorders by making use of the most up-to-date neurophysiological technologies and tests available today"

General Skills

- Acquire up-to-date and practical knowledge of the wide variety of neurophysiological diagnostic techniques available, which will be of maximum use in care practice or research work
- Know the indications, usefulness and clinical applications for a better understanding of the methodology involved in developing a critical spirit when evaluating the results, always integrated in a clinical context
- Review and update skills in current techniques and present some of the new, numerous and promising fields of application in neurophysiology
- Make an exhaustive review of the latest guidelines, advice and techniques within the specialty
- Know how to use the different neurophysiological techniques in critical or pediatric patients, or in intraoperative neurophysiological monitoring



Specific Skills

- Gradually acquire the necessary skills to identify different physiological and pathological graphoelements
- Acquire patient Address skills from outpatient stages to ICU and surgical patient stages
- Delve deeper into all the diagnostic arsenal available to evaluate the different neuromuscular structures
- Gain theoretical and practical knowledge of the techniques used in the operating room, as well as their particularities when interpreting them in a different working environment such as the operating room and anesthetized patients
- Delve deeper into the theoretical-practical indications for each technique depending on the surgery to be performed, knowing their contributions and limitations
- Know the different useful diagnostic techniques in assessing pain and nociceptive pathways
- Update knowledge of the latest relevant developments in the field of sleep physiology and its functions
- Learn and understand, with the help of practical, graphic and visual material, how to handle and interpret the "*gold standard*" diagnostic test for sleep disorders, polysomnography, etc.
- Obtain sufficient and essential training in the organizational planning, implementation, evaluation and understanding of diagnostic processes in sleep disorders
- Describe recent advances in the field of neuromodulation therapies, as well as their application in different pathologies such as chronic pain, OSA, epilepsy, Parkinson's disease, fibromyalgia, or tinnitus, among others
- Know how to apply botulinum toxin guided by neurophysiological techniques, mainly indicated for the treatment of dystonia

Thanks to this program, you will handle first level tools and implement complex procedures such as Polysomnography and Intraoperative Neurophysiological Monitoring"

05

Course Address

The professors of this degree have been chosen by TECH due to their extensive experience in the field of Neurophysiological Diagnosis and Treatment. These experts are also distinguished in the medical field for their mastery of the most up-to-date techniques and equipment available in this area of health.

The teachers have made a careful selection of the most innovative topics, protocols and procedures that are now part of the most innovative syllabus on the educational market. Under the guidance of this faculty of excellence, the physician will be able to expand his or her knowledge and offer higher quality care to patients with various neuropathologies.

Top Neurophysiology professors have chosen the up-to-date modules that make up this world-class academic program"

Course Address

Dr. Martínez Pérez, Francisco

- Physician in the Neurophysiology Service at the MIP Clinic
- Physician in the Clinical neurophysiology Unit Ruber Juan Bravo Hospital, Madrid
- Physician in the International Unit La Paz Hospital
- Degree in Medicine and Surgery from the Complutense University of Madrid.
- Master's Degree in Sleep: UPO Physiology and Pathology
- Master's Degree in Neurological Electrodiagnosis from the University of Barcelona.
- Researcher, university lecturer and professor of the Master's Degree in Sleep Medicine.
- Author of several guidelines and consensuses for different medical societies (SENFC, SES, AEP) and the National Commission of the Specialty.
- National Prize of Medicine XXI Century European Awards in Medicine
- Member of: Spanish Society of Clinical Neurophysiology (SENFC), Sleep Group, Spanish Sleep Society (SES), Pediatric Group, Spanish Intrasurgical Neurophysiological Monitoring Association and Neurological Cell Therapy Group.

Professors

Dr. Balugo Bengoechea, Paloma

- Faculty Specialist in Neurophysiology, San Carlos Clinical Hospital, Madrid
- Head of the Electroencephalography and Evoked Potentials areas, Clinical Neurophysiology Service, San Carlos Clinical Hospital, Madrid
- Coordinator of the Patient Safety Process, Neurosciences Institute, San Carlos Clinical Hospital, Madrid
- Doctor Specialist in Neurophysiology, San Carlos Clinical Hospital, Madrid
- PhD in Neuroscience. Complutense University of Madrid
- Degree in Medicine from the Complutense University of Madrid.
- Master's Degree in Epilepsy
- Master's Degree in Sleep: Physiology and Medicine. Pablo from Olavide University, Sevilla
- Member of the Neurological Diseases Research Group, Neuroscience Area, Health Research Institute, San Carlos Clinical Hospital (IdISSC)

Dr. Sanz Barbero, Elisa

- Assistant Physician in Clinical Nurophysiology, Getafe General University Hospital
- Responsible for Intraoperative Monitoring, Getafe General University Hospital
- MIR of Clinical Neurophysiology of the HGU, Gregorio Marañon
- Degree in Medicine and Surgery from the University of Salamanca
- Doctorate Level Courses in Neuroscience, UCM

Dr. Del Sanz de la Torre, Javier Manuel

- Assistant Physician, Pain Unit, La Zarzuela University Hospital the Virgen del Mar
- Official Interuniversity Master's Degree in the Study and Treatment of Pain Universities of Cantabria, Cadiz and Rey Juan Carlos
- Master's Degree in Pain Treatment University of Seville. Faculty of Medicine and Virgen del Rocio Hospital
- Master's Degree in Research and Specialized Pain Treatment University of Valencia
- Master's Degree in Ultrasound Anatomy Applied to Interventionism in Regional Anesthesia and Pain Universidad-Empresa Foundation University of Valencia
- Postgraduate Diploma in Musculoskeletal Ultrasound and Interventional Ultrasonography under the auspices of the Spanish Society of Sports Medicine
- Postgraduate Diploma in Ultrasound, Spanish Society of Pain
- Postgraduate Diploma in Radiofrequency Therapy, Spanish Society of Pain

Dr. Martínez Aparicio, Carmen

- Coordinator of the Clinical Neurophysiology Unit at Hospital Vithas, Almeria and FEA of Clinical Neurophysiology at Torrecárdenas University Hospital, Almeria
- Current president of the Andalusian Society of Clinical Neurophysiology (SANFC)
- Degree in Medicine and Surgery from the University of Granada
- Master's Degree in Clinical Nutrition from the University of Granada.
- Master's Degree in Sleep from the Pablo Olavide University
- Expert in Musculoskeletal Ultrasound Francisco de Vitoria University

Dr. López Gutiérrez, Inmaculada

- Head of the Clinical Neurophysiology Department, Rey Juan Carlos, Infanta Elena, General de Villalba and Jiménez Diaz Foundation Hospitals
- Degree in Medicine from the University of Granada
- Official Master's Degree in Neurosciences from the University of Seville
- Expert in Sleep Medicine by the Spanish Committee of Accreditation in Sleep Medicine (CEAMS).
- Somnologist - Postgraduate Diploma in Sleep Medicine, European Sleep Research Society (ESRS)
- Coordinator of the Multidisciplinary Pain Sleep Unit. University Hospital
- Member of the Spanish Andalusian Society of Clinical Neurophysiology
- Member of the Spanish Sleep Society and its Pediatric Working Group
- Member of the European Sleep Research Society

Dr. Fernández Sánchez, Victoria

- Head of from Section-Clinical Neurophysiology Service, Regional University Hospital, Malaga
- Head of Service at Hospital Quirónsalud, Málaga.
- Delegada SENFC para IFCN (Federación Internacional de Sociedades de Neurofisiología Clínica)
- Member of the Spanish Society of Clinical Neurophysiology
- Honorary collaborator in the Department of Human Anatomy, Faculty of Medicine, University of Malaga
- Doctor of Medicine, University of Malaga
- Graduate in Medicine and Surgery, University of Malaga
- Specialist in Clinical Neurophysiology
- Master's Degree in Sleep from the Pablo Olavide University
- Master's Degree in Neuroscience, Pablo Olavide University

Dr. Lladó Carbó, Estela

- Coordinator of the National Working Group on Neuromodulation, Spanish Society of Clinical Neurophysiology.
- Medical Director at the Neurophysiology Unit, HM Nou Delfos
- Director and CEO at Neurotoc, S.L. Intraoperative Neuromonitoring
- Member of the Spanish Intraoperative Neurophysiological Monitoring Association (AMINE).
- Co-founder of MiMedicus, Spain
- Specialist via MIR in Clinical Neurophysiology at the Hospital Universitari Vall d'Hebrón.
- Degree in Medicine and Surgery, University of Barcelona
- Postgraduate Certificate in Neurosciences (DEA), University University of Barcelona
- Postgraduate Certificate in Magnetic Stimulation and Neuromodulation University University University of Cordoba - Harvard Allen Center

Dr. Larrosa Gonzalo, Óscar

- Coordinator of the Sleep Medicine Unit, MIPsalud, Madrid
- Clinical Manager of the Sleep Disorders and Electroencephalography Unit at Hospital Quirónsalud Sur.
- Degree in Medicine and Surgery from the University of the Basque Country/ Euskal Herriko Unibertsitatea
- MIR Specialist in Clinical Neurophysiology, Universidad Complutense de Madrid, Hospital Clínico Universitario San Carlos.
- Expert in Sleep Medicine by the Committee of Accreditation from Sleep Medicine (CEAMS).
- Spanish Society of Sleep (SES)
- Member of Neurology and Orthopedics working groups, SES)

06

Educational Plan

This study program will lead the professional through several recently updated topics within the area of Neurophysiological Diagnosis and Treatment. In particular, he will delve into Brain Electrogenesis and its advantages for the detection of early epilepsies in the neonate or infant. Likewise, he will also go in depth on botulinum toxin infiltration with guidance and other techniques for therapeutic purposes. In turn, you will examine the latest trends in invasive and non-invasive Nueromodulation. For this learning, the doctor will rely on revolutionary teaching methods such as *Relearning*, which enhances the rapid and flexible assimilation of the most complex content.

During 1,500 hours, you will acquire the most up-to-date theoretical knowledge in the field of Neurophysiology thanks to this innovative degree"

Module 1. Brain Electrogenesis: Recording and Analysis Techniques Electroencephalogram Development

1.1. Biophysical Fundamentals of EEG Recording
- 1.1.1. Context
- 1.1.2. Brief Mathematical Revision
  - 1.1.2.1. Vector Analysis
  - 1.1.2.2. Determinants and Matrices
- 1.1.3. Brief Introduction to Electromagnetism
  - 1.1.3.1. The Concepts of Field and Potential
  - 1.1.3.2. Maxwell's Equations
- 1.1.4. Cerebral Electrical Fields

1.2. Technical and Analytical Fundamentals of EEG
- 1.2.1. Context
- 1.2.2. Analogue-to-Digital Conversion (ADC)
- 1.2.3. Filters
- 1.2.4. Digital Signal Analysis
  - 1.2.4.1. Spectral Analysis
  - 1.2.4.2. Wavelet Analysis
- 1.2.5. Determining Interaction between Two Signals

1.3. Protocols and Standards for EEG and Video-EEG, Triggering Maneuvers: Artifact Detection
- 1.3.1. EEG and Video-EEG
  - 1.3.1.1. Recording Conditions
  - 1.3.1.2. Electrodes
  - 1.3.1.3. By-Passes and Assemblies
  - 1.3.1.4. Records
- 1.3.2. Video-EEG
  - 1.3.2.1. Technical Aspects
  - 1.3.2.2. Indications
- 1.3.3. Routine Stimulation Maneuvers
  - 1.3.3.1. Ocular Opening and Closure
  - 1.3.3.2. Pulmonary Hyperventilation
  - 1.3.3.3. Intermittent Luminous Stimulation
- 1.3.4. Other Non-Standard Activation Methods
  - 1.3.4.1. Other Visual Activation Procedures
  - 1.3.4.2. Activation by Sleep
  - 1.3.4.3. Other Activation Methods
- 1.3.5. Introduction to Artefacts and Their Relevance
  - 1.3.5.1. General Detection Principles
  - 1.3.5.2. Common Artifacts
  - 1.3.5.3. Artifact Removal
- 1.3.6. Key Concepts

1.4. Normal Adult EEG
- 1.4.1. Normal Wakefulness EEG
  - 1.4.1.1. Alpha Rhythm
  - 1.4.1.2. Beta Rhythm
  - 1.4.1.3. Mu Rhythm
  - 1.4.1.4. Lambda Waves
  - 1.4.1.5. Low-Voltage Work
  - 1.4.1.6. Theta Activity
- 1.4.2. Normal Sleep EEG
  - 1.4.2.1. NREM Sleep
  - 1.4.2.2. REM Sleep
- 1.4.3. Normality Variants/Patterns of Uncertain Significance

1.5. Child EEG, Development and Maturation I
- 1.5.1. Technical Considerations
- 1.5.2. Age-Specific EEG Characteristics
  - 1.5.2.1. Continuity
  - 1.5.2.2. Bilateral Hemispheric Synchrony
  - 1.5.2.3. Voltage
  - 1.5.2.4. Variability
  - 1.5.2.5. Reactivity
  - 1.5.2.6. Age-Specific Waves
    - 1.5.2.6.1. Beta-Delta Complex
    - 1.5.2.6.2. Temporary Theta and Alpha Wave Bursts
    - 1.5.2.6.3. Frontal Sharp Waves

1.5.3. EEG in Wakefulness and Sleep
1.5.3.1. Wakefulness
1.5.3.2. NREM Sleep
1.5.3.3. REM Sleep
1.5.3.4. Indeterminate and Transitional Sleep
1.5.3.5. Stimuli Reactivity
1.5.4. Special Patterns/Normality Variants
1.5.4.1. Bifrontal Delta Activity
1.5.4.2. Temporal Sharp Waves
1.5.5. Key Concepts
1.6. Child EEG, Development and Maturation II: Physiological EEG from Infancy to Adolescence
1.6.1. Technical Considerations
1.6.2. EEG in Infants from 2 to 12 Months Old
1.6.3. EEG in Early Infancy from 12 to 36 Months Old
1.6.4. EEG in Preschool Age from 3 to 5 Years Old
1.6.5. EEG in Older Children from 6 to 12 Years Old
1.6.6. EEG in Adolescents from 13 to 20 Years Old
1.6.7. Key Concepts
1.7. Slow Abnormalities: Description and Significance
1.7.1. Focal Slow Abnormalities
1.7.1.1. Summary
1.7.1.2. Pattern Description
1.7.1.3. Clinical Significance of Slow Focal Waves
1.7.1.4. Disorders Responsible for Slow Focal Waves
1.7.2. Asynchronous Generalized Slow Abnormalities
1.7.2.1. Summary
1.7.2.2. Pattern Description
1.7.2.3. Clinical Significance of Asynchronous Generalized Waves
1.7.2.4. Disorders Responsible for Asynchronous Generalized Waves
1.7.3. Synchronous Generalized Slow Waves
1.7.3.1. Summary
1.7.3.2. Pattern Description
1.7.3.3. Clinical Significance of Asynchronous Generalized Waves
1.7.3.4. Disorders Responsible for Asynchronous Generalized Waves
1.7.4. Conclusions
1.8. Focal and Generalized Intercritical Epileptiform Abnormalities
1.8.1. General Considerations
1.8.2. Identification Criteria
1.8.3. Localization Criteria
1.8.4. Intercritical Epileptiform Abnormalities and Their Interpretation
1.8.4.1. Spikes and Sharp Waves
1.8.4.2. Benign Focal Epileptiform Discharges
1.8.4.3. Wave-Spike
1.8.4.3.1. Slow Wave-Spike
1.8.4.3.2. 3 Hz Wave-Spike
1.8.4.3.3. Polyspike or Polyspike-Wave
1.8.4.4. Hypsarrhythmia
1.8.4.5. Focal Intercritical Abnormalities in Generalized Epilepsies
1.8.5. Summary/Key points
1.9. Ictal EEG: Seizure Types and Electroclinical Correlates
1.9.1. Generalized Onset Seizures
1.9.1.1. Motor Onset
1.9.1.2. Non-Motor Onset
1.9.2. Focal Onset Seizures
1.9.2.1. State of Consciousness
1.9.2.2. Motor/Non-Motor Onset
1.9.2.3. Focal Presenting Progression to Bilateral Tonic-Clonic
1.9.2.4. Hemispheric Lateralization
1.9.2.5. Lobar Localization
1.9.3. Unknown Onset Seizures
1.9.3.1. Motor/Non-Motor
1.9.3.2. Not Classified
1.9.4. Key Concepts

1.10. Quantified EEG
- 1.10.1. Historical Clinical Practice Use of Quantified EEG
- 1.10.2. Quantified EEG Application Methods
  - 1.10.2.1. Types of Quantified EEG
    - 1.10.2.1.1. Power Spectrum
    - 1.10.2.1.2. Synchronization Measurements
- 1.10.3. Quantified EEG in Current Clinical Practice
  - 1.10.3.1. Encephalopathies Classification
  - 1.10.3.2. Epileptic seizures Detection
  - 1.10.3.3. Advantages of Continuous EEG Monitoring
- 1.10.4. Key Concepts

Module 2. Electroencephalogram (EEG) in Electroclinical Syndromes and Neurocritical Patients: Neurophysiological Precision Techniques in the Diagnosis and Treatment of Epilepsy

2.1. Electroclinical syndromes in Neonates and Infants
- 2.1.1. Neonatal Period
  - 2.1.1.1. Ohtahara Syndrome
  - 2.1.1.2. Early Myoclonic Encephalopathy
  - 2.1.1.3. Neonatal Self-Limited Seizures: Self-Limited Familial Neonatal Epilepsy
  - 2.1.1.4. Neonatal-Onset Structural Focal Epilepsy
- 2.1.2. Infant Period
  - 2.1.2.1. West Syndrome
  - 2.1.2.2. Dravet Syndrome
  - 2.1.2.3. Febrile Seizures Plus and Genetic Epilepsy with Febrile Seizures Plus
  - 2.1.2.4. Myoclonic Epilepsy in Infants
  - 2.1.2.5. Familial and Non-Familial Self-Limited Infant Epilepsy
  - 2.1.2.6. Infant Epilepsy with Migratory Focal Seizures
  - 2.1.2.7. Myoclonic Status Myoclonicus in Non-Progressive Encephalopathies
  - 2.1.2.8. Epilepsy in Chromosomal Disorders

2.2. Electroclinical Syndromes in Childhood
- 2.2.1. Role of EEG and Video-EEG in the Diagnosis and Classification of Epileptic Syndromes with Onset between 3 and 12 Years of Age
  - 2.2.1.1. Background and Current Clinical Practice
  - 2.2.1.2. Methodological Design and Recording Protocols
  - 2.2.1.3. Interpretation, Diagnostic Value of Findings, Reporting
  - 2.2.1.4. Integration of EEG in Syndrome-Ethiology Taxonomy
- 2.2.2. Genetic Generalized Epilepsies (Idiopathic, GGE)
  - 2.2.2.1. Typical EEG Characteristics of EGI and Methodological Principles
  - 2.2.2.2. Infant Absence Epilepsy
  - 2.2.2.3. Juvenile Absence Epilepsy
  - 2.2.2.4. Other GGE Phenotypes (3-12 Years Old)
  - 2.2.2.5. Epilepsies with Reflex Seizures
- 2.2.3. Genetic Focal Epilepsies (Idiopathic, GFE)
  - 2.2.3.1. Typical EEG Characteristics of EFI and Methodological Principles
  - 2.2.3.2. Idiopathic Focal Epilepsy with Centro-Temporal Spikes
  - 2.2.3.3. Panayiotopoulos Syndrome
  - 2.2.3.4. Other GFE Phenotypes (3-12 Years Old)
- 2.2.4. Non-Idiopathic Focal Epilepsies (FE): Lobar Syndromes
  - 2.2.4.1. Typical EEG Characteristics of EF and Methodological Principles
  - 2.2.4.2. Frontal Lobe Epilepsy
  - 2.2.4.3. Temporal Lobe Epilepsy
  - 2.2.4.4. Posterior Cortex Epilepsy
  - 2.2.4.5. Other Localizations (Insula, Cingulate, Hemispheric Lesions)
- 2.2.5. Epileptic Encephalopathies (EE) and Related Syndromes (3-12 Years Old)
  - 2.2.5.1. Typical EEG Characteristics of EE and Methodological Principles
  - 2.2.5.2. Lennox-Gastaut Syndrome
  - 2.2.5.3. Encephalopathy with Electrical Sleep Electrical Status Sickness (ESES) and Landau-Kleffner Syndrome
  - 2.2.5.4. Epilepsy with Myoclonus-Atonic Seizures (Doose Syndrome)
  - 2.2.5.5. Epilepsy with Myoclonic Absences

2.3. Electroclinical Syndromes in Adolescents and Adults
- 2.3.1. Role of EEG in the Diagnosis of Epileptic Syndromes in Adolescents and Adults
- 2.3.2. Genetic Generalized Epilepsy in Adolescents and Adults
  - 2.3.2.1. Juvenile Myoclonic Epilepsy
  - 2.3.2.2. Juvenile Absence Epilepsy
  - 2.3.2.3. Epilepsy with Generalized Tonic-Clonic Seizures
  - 2.3.2.4. Other EGI Phenotypes in Adolescents and Adults
- 2.3.3. Non-Idiopathic Focal Epilepsy in Adolescents and Adults: Lobar Syndromes
  - 2.3.3.1. Frontal Lobe
  - 2.3.3.2. Temporal Lobe
  - 2.3.3.3. Other Locations
- 2.3.4. Other Non-Age-Specific Epileptic Syndromes
- 2.3.5. Epilepsy in the Elderly

2.4. ICU EEG Nomenclature
- 2.4.1. Minimum Requirements for Reporting in Neurocritical Patients
- 2.4.2. Background Tracing
- 2.4.3. Sporadic Onset Epileptiform Discharges
- 2.4.4. Rhythmic and/or Periodic Patterns
- 2.4.5. Electrical and Electro-Clinical Seizures
- 2.4.6. Brief Potentially Ictal Rhythmic Discharges (BIRDs)
- 2.4.7. Ictal-Interictal Continuum
- 2.4.8. Other Terminology

2.5. EEG in Altered Level of Consciousness, Coma, and Brain Death
- 2.5.1. EEG Findings in Encephalopathy
- 2.5.2. EEG Findings in Coma
- 2.5.3. Brain Electrical Inactivity
- 2.5.4. Evoked Potentials in Conjunction with EEG in Patients with Altered Level of Consciousness

2.6. Status Epilepticus I
- 2.6.1. Context
  - 2.6.1.1. "Time is the Brain"
  - 2.6.1.2. Pathophysiology
- 2.6.2. Definition and Timing
- 2.6.3. Classification. Diagnostic Axes
  - 2.6.3.1. Axis I: Semiology
  - 2.6.3.2. Axis II: Etiology
  - 2.6.3.3. Axis III: EEG Correlate
  - 2.6.3.4. Axis IV: Age

2.7. Status Epilepticus II
- 2.7.1. Non-Convulsive Status Epilepticus: Definition
- 2.7.2. Semiology
  - 2.7.2.1. Non-Convulsive Status in Comatose Patients
  - 2.7.2.2. Non-Convulsive Status in Non-Comatose Patients
    - 2.7.2.2.1. Dyscognitive Status: Altered Level of Consciousness (or Dialeptic) and Aphasic
    - 2.7.2.2.2. Continuous Aura
    - 2.7.2.2.3. Autonomic Status
- 2.7.3. EEG Criteria to Determine Non-Convulsive Status (Salzburg Criteria)

2.8. Continuous EEG/Video-EEG Monitoring in the ICU
- 2.8.1. Usefulness and Conditions
- 2.8.2. Recommended Indications and Duration
  - 2.8.2.1. Adult and Pediatric Population
  - 2.8.2.2. Neonates
- 2.8.3. Clinical Tools
- 2.8.4. New Devices

2.9. Epilepsy Surgery
- 2.9.1. Preoperative Video-EEG
  - 2.9.1.1. Superficial
  - 2.9.1.2. Invasive
  - 2.9.1.3. Semi-Invasive
- 2.9.2. Intraoperative Monitoring.

2.10. High-Density Electroencephalogram: Generator Localization and Source Analysis
- 2.10.1. Signal Acquisition
  - 2.10.1.1. General Aspects
  - 2.10.1.2. Type, Localization and Number of Electrodes
  - 2.10.1.3. The Importance of References
- 2.10.2. Digitalizing Electrode Localization
- 2.10.3. Debugging, Artifacts and Signal Cleaning
- 2.10.4. Blind Source Separation
- 2.10.5. Brain Dipoles
- 2.10.6. Brain Maps
  - 2.10.6.1. Adaptive Spatial Filters
- 2.10.7. Skull and Brain Modeling
  - 2.10.7.1. Spherical Models
  - 2.10.7.2. Surface Element Model
- 2.10.8. Finite Element Model
- 2.10.9. Generator Localization: Inverse Problem
  - 2.10.9.1. Single Current Dipole Model

October 02, 2010) *Imaging* Methods

Module 3. Evoked Potentials

3.1. Fundamentals of Evoked Potentials
- 3.1.1. Fundamental Concepts
- 3.1.2. Types of Evoked Potentials
- 3.1.3. Techniques and Requirements
- 3.1.4. Clinical Applications

3.2. Neurophysiological Study of the Eye and the Visual Pathway I
- 3.2.1. Electroretinogram
  - 3.2.1.1. Flash ERG
  - 3.2.1.2. Pattern ERG (Checkerboard)
  - 3.2.1.3. Ganzfeld ERG
  - 3.2.1.4. Multifocal ERG
- 3.2.2. Electrooculogram

3.3. Neurophysiological Study of the Eye and the Visual Pathway II
- 3.3.1. Visual Evoked Potentials
  - 3.3.1.1. Pattern Stimulation
    - 3.3.1.1.1. Complete Field Study
    - 3.3.1.1.2. Hemifield Studies: Quadrants
  - 3.3.1.2. LED-Glasses Stimulation
  - 3.3.1.3. Other techniques: Multifocal PEV

3.4. Auditory Pathway
- 3.4.1. Anatomophysiology of the Auditory Pathways
- 3.4.2. Brainstem Auditory Evoked Potentials
  - 3.4.2.1. Short Latency
  - 3.4.2.2. Medium Latency
  - 3.4.2.3. Long Latency
- 3.4.3. Other Techniques
  - 3.4.3.1. Otoacoustic Emissions
    - 3.4.3.1.1. Transient Evoked
    - 3.4.3.1.2. Distortion Products
  - 3.4.3.2. Electrocochleography
  - 3.4.3.3. Steady State Auditory Evoked Potentials
    - 3.4.3.3.1. PEAee
    - 3.4.3.3.2. PEAee-MF
  - 3.4.3.4. Audiometry
    - 3.4.3.4.1. Pure Tone Audiometry: Liminal Tonal Audiometry
    - 3.4.3.4.2. Bone Conduction Audiometry

3.5. Vestibular System
- 3.5.1. Vestibular System and the Visual and Proprioceptive Systems
- 3.5.2. Nystagmus
  - 3.5.2.1. Vestibular Tests
    - 3.5.2.1.1. Videonystagmography (VNG)
      - 3.5.2.1.1.1. Oculomotor System Tests
      - 3.5.2.1.1.2. Postural and Positional Tests
      - 3.5.2.1.1.3. Caloric Tests
      - 3.5.2.1.1.4. Additional VNG Tests

3.5.3. Peripheral and Central Vertigo
3.5.3.1. Diagnostic Tests
3.5.3.1.1. Electronystagmography
3.5.3.1.2. vHIT
3.5.3.1.3. Posturography
3.5.3.1.4. Vestibular Myogenic Evoked Potentials
3.5.3.2. HINTS Protocol
3.5.3.3. Benign Paroxysmal Positional Vertigo (BPPV)
3.6. Somatosensory Potentials
3.6.1. Anatomophysiological Recall
3.6.2. Technique: Practical Procedures
3.6.3. Interpretation
3.6.4. Clinical Applications
3.6.5. Dermatomal Somatosensory Evoked Potentials
3.7. Motor Evoked Potentials
3.7.1. Electric Stimulation
3.7.2. Transcranial Magnetic Stimulation
3.7.3. Diagnostic Applications
3.8. Evoked Potentials in the ICU
3.8.1. Introduction
3.8.2. Most Used Potentials in the ICU
3.8.2.1. Somatosensory Evoked Potentials (SSEP)
3.8.2.2. Truncal Auditory Evoked Potentials (TAEP)
3.8.2.3. Visual Evoked Potentials (VEP)
3.8.2.4. Long-Latency Evoked Potentials-Mismatch Negativity
3.8.3. Assessing the Use of EPs in Coma Patients or Suffering Altered Consciousness in the ICU
3.8.4. Evoked Potentials in the ICU
3.8.4.1. Olfactory Evoked Potentials
3.8.4.2. Cardiac Beat Evoked Potentials
3.8.4.3. Others
3.9. Cognitive Potentials
3.9.1. Definition of Cognitive Potentials
3.9.2. Types of Cognitive Potentials: General Information
3.9.3. Measurement Parameters for Cognitive Potentials
3.9.4. *Mismatch Negativity*: Introduction. Recording and Evaluation Generators Clinical Applications
3.9.5. P300: Introduction Recording and Evaluation Generators Clinical Applications
3.9.6. N400: Introduction Recording and Evaluation Generators Clinical Applications
3.9.7. Other Cognitive Potentials in Research
3.9.8. Conclusions
3.10. Evoked Potentials in Pediatric Patients

Module 4. Neurophysiological Techniques in the Diagnosis of Neuromuscular Diseases

4.1. Anatomy and Physiology of the Peripheral Nervous System
4.2. Sensory and Motor Nerve Conduction Studies
4.3. Reflexology and Late Responses
4.3.1. F Wave
4.3.2. A Wave
4.3.3. H Reflex
4.3.4. T Reflex
4.4. Technical and Quality Considerations in Neuromuscular Electrodiagnosis: Procedural Errors Precautions
4.5. Neurophysiological Assessment of Neuromuscular Junction Function
4.5.1. Repetitive Nerve Stimulation
4.5.2. Jitter Study Using Single-Fiber Needles and Concentric Needles
4.5.2.1. Voluntary Contraction
4.5.2.2. Axonal Stimulation
4.6. Principles of Electromyography: Electromyographic Response in Normal Motor Units Insertion Activity Motor Plate Activity Motor Unit Potential Pathological Muscle Activity
4.7. Techniques for Quantitative Estimation of Motor Units
4.7.1. MUNE
4.7.2. MUNIX
4.7.3. MUSIX

4.8. Neurophysiological Study of the Facial and Trigeminal Nerves
4.9. Neurophysiological Evaluation of the Respiratory System
  4.9.1. Laryngeal Nerves and Muscles
  4.9.2. Phrenic Nerve and Diaphragm Muscle
4.10. Neuromuscular Ultrasound
  4.10.1. Basic Neural Semiology and Physical Basis Adapted to Ultrasound Study
  4.10.2. Normal Anatomy and Ultrasound Correlation
    4.10.2.1. Upper Limbs
    4.10.2.2. Lower Extremities
  4.10.3. Ultrasound Scanning: Peripheral Nerves
    4.10.3.1. Upper Limbs
    4.10.3.2. Lower Extremities
  4.10.4. Ultrasound Diagnosis: Focal Neuropathies
    4.10.4.1. Upper Limbs
    4.10.4.2. Lower Extremities
  4.10.5. Advanced Imaging
  4.10.6. Percutaneous Interventional Techniques

Module 5. Electroneuromyography (ENMG) Protocols in the Diagnosis of Neuromuscular Diseases

5.1. Neurophysiological Study in Pathology of the Cervical Roots and Brachial Plexus
5.2. Neurophysiological Study in Pathology of Roots and Lumbosacral Plexus
5.3. Neurophysiological Examination of Upper Limb Nerve Pathology Mononeuropathies and Focal Lesions
  5.3.1. Median Nerve
  5.3.2. Ulnar Nerve
  5.3.3. Radial Nerve
  5.3.4. Shoulder Girdle Nerves
  5.3.5. Others
5.4. Neurophysiological Examination of Lower Limb Nerve Pathology Mononeuropathies and Focal Lesions
  5.4.1. Sciatic (Ischiadic) Nerve
  5.4.2. Femoral Nerve
  5.4.3. Obturator Nerve
  5.4.4. Others

5.5. Neurophysiological Examination of Polyneuropathies
5.6. Neurophysiological Examination of Myopathies Muscular Dystrophies, Myotonias and Channelopathies
5.7. Neurophysiological Assessment of Motor Neuron Diseases
5.8. Clinical-Neurophysiological Correlation of Neuromuscular Transmission Disorders
  5.8.1. Myasthenia Gravis
  5.8.2. Lamber-Eaton Syndrome
  5.8.3. Botulism
  5.8.4. Others
5.9. Neurophysiological Study of Tremor and Other Movement Disorders
5.10. Neurophysiological Assessment of Neuromuscular Pathology in Pediatrics

Module 6. Intraoperative Neurophysiological Monitoring

6.1. Neurophysiological Techniques Applied to MIO: Monitoring and Mapping
  6.1.1. Monitoring Techniques
    6.1.1.1. Motor Evoked Potentials
      6.1.1.1.1. Transcraneal
        6.1.1.1.1.1. Muscular Recording
        6.1.1.1.1.2. Epidural Recording: D Wave
      6.1.1.1.2. Direct Cortical Stimulation
    6.1.1.2. Somatosensory Evoked Potentials
    6.1.1.3. Brainstem Auditory Evoked Potentials
    6.1.1.4. Reflexes
    6.1.1.5. Peripheral Nerve, Plexus and Nerve Roots: Electromyography
  6.1.2. Mapping Techniques
    6.1.2.1. *Phase Reversal*
      6.1.2.1.1. Central Cortex/Sulcus
      6.1.2.1.2. Medullary/Posterior Cords
    6.1.2.2. Cortical
    6.1.2.3. Sub-Cortical
    6.1.2.4. Nerve, Plexus and Nerve Roots: EMG

6.2. Electrodes. Influence of Anesthetics Filters and Artifacts
- 6.2.1. Types of Stimulation and Recording Electrodes: Characteristics and Indications
- 6.2.2. Anesthesia and Monitoring
- 6.2.3. Filters
- 6.2.4. Artefacts
- 6.2.5. Risks. Contraindications

6.3. Intraoperative Neurophysiologic Monitoring in Supratentorial Process Surgery
- 6.3.1. Monitoring and Mapping Indications
- 6.3.2. Techniques Used
- 6.3.3. Alarm Criteria

6.4. Intraoperative Neurophysiologic Monitoring in Infratentorial Process Surgery
- 6.4.1. Monitoring and Mapping Indications
- 6.4.2. Techniques Used
- 6.4.3. Alarm Criteria

6.5. Intraoperative Functional Speech Exploration during Brain Lesionectomies

6.6. Intraoperative Neurophysiologic Monitoring in Spinal Chord Surgery
- 6.6.1. Monitoring and Mapping Indications
- 6.6.2. Techniques Used
- 6.6.3. Alarm Criteria

6.7. Intraoperative Neurophysiologic Monitoring in Cervical and Dorsal Spine Surgery
- 6.7.1. Monitoring and Mapping Indications
- 6.7.2. Techniques Used
- 6.7.3. Alarm Criteria

6.8. Intraoperative Neurophysiologic Monitoring in Lumbar and Sacro Spine Surgery
- 6.8.1. Monitoring and Mapping Indications
- 6.8.2. Techniques Used
- 6.8.3. Alarm Criteria

6.9. Intraoperative Neurophysiologic Monitoring in Peripheral Nerve and Plexus Surgery
- 6.9.1. Monitoring and Mapping Indications
- 6.9.2. Techniques Used
- 6.9.3. Alarm Criteria

6.10. Intraoperative Neurophysiologic Monitoring in Vascular Surgery
- 6.10.1. Monitoring and Mapping Indications
- 6.10.2. Techniques Used
- 6.10.3. Alarm Criteria

Module 7. Autonomic Nervous System: Pain Other Complex Techniques or Other Specialty Partnerships

7.1. Autonomic Nervous System
- 7.1.1. Anatomy
- 7.1.2. Physiology
- 7.1.3. Neurotransmission

7.2. Autonomic Dysfunction
- 7.2.1. Semiology
- 7.2.2. Pathology
  - 7.2.2.1. Cardiovascular Disorders
  - 7.2.2.2. Thermoregulation Disorders
  - 7.2.2.3. Others
    - 7.2.2.3.1. Autonomic Dysfunction in Neurodegenerative Diseases
    - 7.2.2.3.2. Urological Dysfunction

7.3. Neurophysiological Tests for the Study and Assessment of Autonomic Disorders

7.4. Pain
- 7.4.1. Pain Phisiopathogenesis
- 7.4.2. Complex Regional Pain: Neuropathic Pain
- 7.4.3. Central Sensitization

7.5. Neurophysiological Techniques for the Evaluation of Painful Processes: Neurophysiological Implications in Diagnosis
- 7.5.1. Termotest
- 7.5.2. CHEPs
- 7.5.3. Laser Evoked Potentials

7.6. Monitoring Techniques for Special Conditions
- 7.6.1. Bispectral Index (BIS)
- 7.6.2. ANI/NIPE
- 7.6.3. Others

7.7. Neurophysiological Techniques in Dentistry
- 7.7.1. Pathology
- 7.7.2. Techniques and Practical Applications

7.8. Neurophysiological Studies of the Pelvic Floor
- 7.8.1. Combined Techniques in Assessing the Neuromuscular Function of the Pelvic Floor

7.9. Clinical Neurophysiology and Biomechanics I: Gait Biomechanics
- 7.9.1. Instrumental Analysis of Kinetic, Kinematic and Electromyographic Patterns
- 7.9.2. Muscle Activation Sequence in Gait Phases: Muscle Activation Maps

7.10. Clinical Neurophysiology and Biomechanics II
- 7.10.1. Neurophysiological Evaluation of the Foot and Ankle
- 7.10.2. Combined Neurophysiological and Ultrasound Studies

Module 8. Neurobiology and Physiology of Sleep: Methodological Aspects

8.1. Normal Sleep
- 8.1.1. Features
- 8.1.2. Changes with Age
- 8.1.3. Function

8.2. Neurobiology and Physiological Changes during the Sleep-Wake Cycle
8.3. Chronobiology of the sleep-wake cycle
8.4. Polysomnography I: Technical Aspects and Methodology
8.5. Polysomnography II: Recording Sensors and Use
8.6. Polysomnography III: Sleep Structure Quantification and Cardiorespiratory Events
8.7. Polysomnography IV: Motor Event Quantification
8.8. Advanced Automatic Signal Analysis
8.9. Other Polysomnographic Techniques in Sleep-Wakefulness
- 8.9.1. Breathing Polygraphy during Sleep
- 8.9.2. Multiple Sleep Latency Test
- 8.9.3. Maintenance of Wakefulness Test
- 8.9.4. Suggested Immobilization Test

8.10. Actigraphy, Circadian Monitoring and Other Ambulatory Measurements

Module 9. Clinical-Instrumental Diagnosis of Sleep Disorders

9.1. Insomnia and Excessive Daytime Sleepiness Evaluation
9.2. Sleep-Wake Circadian Rhythm Disorder Evaluation
9.3. Breathing Disorder Evaluation during Sleep I
9.4. Sleep-Disordered Breathing Evaluation during Sleep II
9.5. NREM and Mixed REM-NREM Parasomnias Evaluation
9.6. REM Parasomnias Evaluation
9.7. Wake-Sleep Dissociative States: *Status Dissociatus* Evaluation
9.8. Movement Disorder Evaluation during Sleep I
- 9.8.1. Restless Leg Syndrome or Willis-Ekbom Disease
- 9.8.2. Periodic Limb Movement Syndrome during Sleep

9.9. Movement Disorder Evaluation during Sleep II
9.10. Epilepsy Evaluation during Sleep: Sleep in Neurodegenerative Diseases

Module 10. Neurophysiological Techniques for Therapeutic Purposes: Invasive and Non-Invasive Neuromodulation Botulinum toxin

10.1. Invasive Brain Stimulation: Physiological Basis
- 10.1.1. Definition and Physiological Basis of Invasive Brain Stimulation (ICS)
- 10.1.2. Main Indications at the Present Time

10.2. Direct Cortical and Medullary Stimulation
- 10.2.1. Neurophysiological Basis of Direct Cortical Stimulation in Pain Treatments: Indications and Practical Examples
- 10.2.2. Neurophysiological Basis of Spinal Cord Electrical Stimulation in the Treatment of Pain. Indications and Practical Examples

10.3. Neuromodulation in Epilepsy. Brain Stimulation for Diagnosis and Treatment
- 10.3.1. Basis and Rationale of Neuromodulation for the Diagnosis of Epilepsy
- 10.3.2. Neuromodulation Applied to the Treatment of Epilepsy. Indications and Practical Examples

10.4. Deep Brain Stimulation (DBS)
- 10.4.1. Use of DBS in Parkinson's Disease (PD)
- 10.4.2. How Does DBS Work?
- 10.4.3. Clinical Indications for DBS in PD and Other Movement Disorders

10.5. Vagus Nerve Stimulation (VNS) and Hypoglossal Nerve Stimulation (VNS). Stimulating Other Peripheral Nerves (Trigeminal, Tibial, Occipital, Sacral)
- 10.5.1. VNS in Treating Epilepsy and Other Indications
- 10.5.2. Stimulation of the Hypoglossal Nerve for the Treatment of OSAHS
- 10.5.3. Stimulation of Other Peripheral Nerves (Trigeminal, Occipital, Tibial and Sacral)

10.6. Hearing Implants
- 10.6.1. Definition and Fundamentals of Hearing Implants
- 10.6.2. Types of Hearing Implants: Cochlear and Brain Stem Implants

10.7. Non-Invasive Brain Stimulation (NIBS): Physiological Basis
- 10.7.1. Physiological Basis of ECNI
- 10.7.2. Types of NCTS: Transcranial Electrical Stimulation (TENS) and Transcranial Magnetic Stimulation (TMS).

10.8. Noninvasive Brain Stimulation: Indications and Therapeutic Protocols
- 10.8.1. Indications for NCDI
- 10.8.2. Scientific Evidence and Therapeutic Protocols

10.9. TENS
- 10.9.1. Definition, Mechanism of Action and Modalities
- 10.9.2. Indications, Contraindications and Effects

10.10. Botulinum Toxin Infiltration with Guidance by Neurophysiological Techniques
- 10.10.1. Botulinum Toxin Therapeutic and Adverse Effects
- 10.10.2. Application of Botulinum Toxin in Cervical Dystonia, Blepharospasm, Facial Myokymia, Oromandibular Dystonia, Upper Extremity and Trunk Dystonia.
- 10.10.3. Case Studies

The Syllabus of this program will be at your fingertips wherever and whenever you want from any device connected to the Internet"

07

Clinical Internship

At the end of the theoretical learning period that is part of this blended Master, TECH has contemplated the realization of a classroom practice.
After this stay, the student will have access to first level hospital centers where they will apply the contents learned by means of direct assistance to real cases during 3 rigorous weeks.

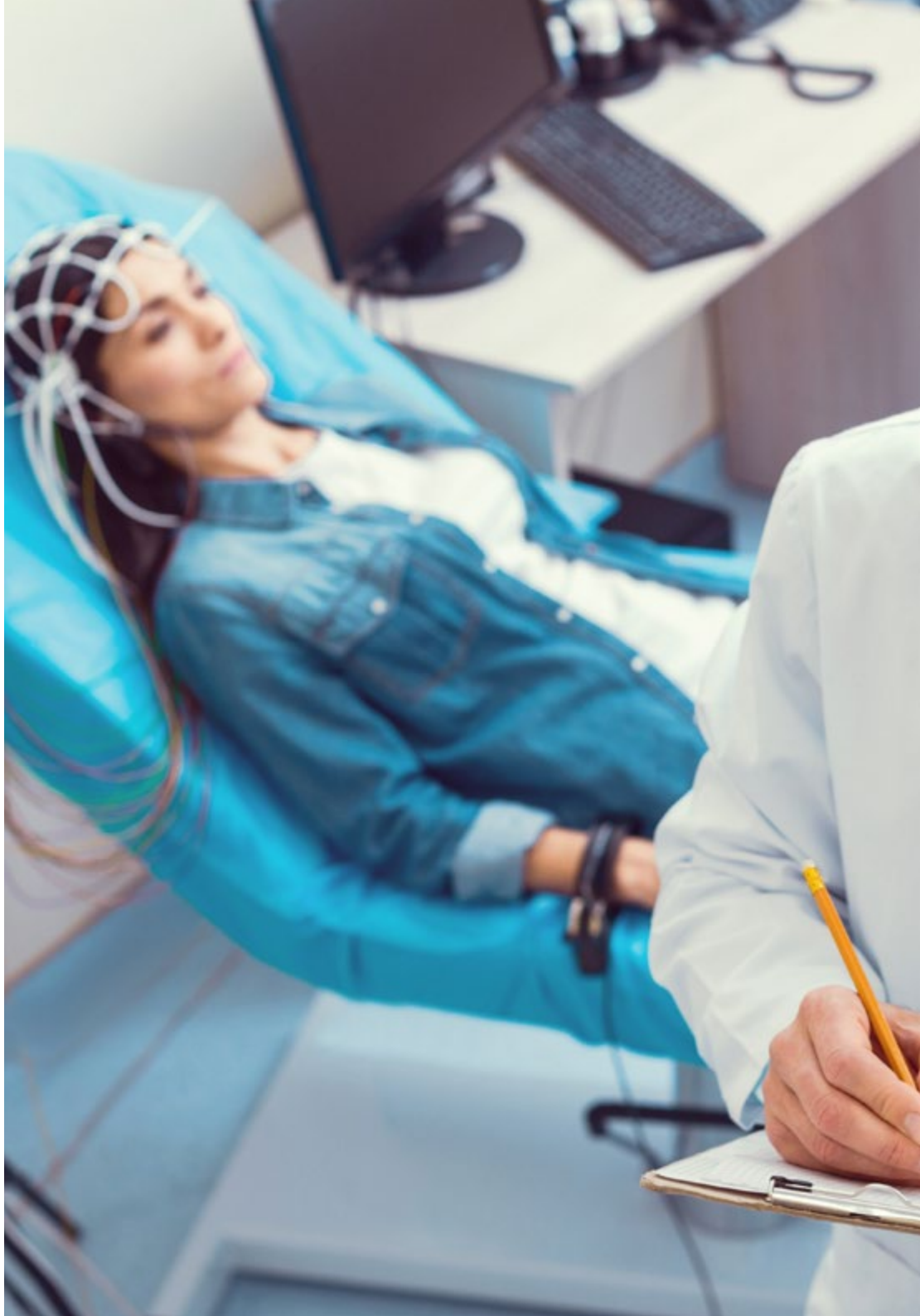
For these clinical internships, you will have the opportunity to access medical institutions located in different latitudes"

The practical phase of this educational program is composed of 120 hours of educational preparation in a reference medical facility in the area of Neurophysiology. The neurologist will complete 8-hour days, Monday through Friday, under the supervision of an assistant tutor who will assign specific responsibilities and tasks for the approach of real cases that are received at the hospital facility.

On the other hand, the graduate will also be able to link with other professionals of the institution who will exchange their experiences and skills with them. At the same time, they will have access to modern and high-end equipment to perform Neurophysiological Diagnostics and Treatments in a direct way. Therefore, upon completion of this classroom-based educational stage, the professional will have acquired a theoretical and practical update on the main novelties in his or her field of interest and will be ready to put them into effect during his or her daily work practice.

The practical education will be carried out with the active participation of the student performing the activities and procedures of each area of competence (learning to learn and learning to do), with the accompaniment and guidance of teachers and other fellow trainees that facilitate teamwork and multidisciplinary integration as transversal competencies for Current in Neurophysiology practice (learning to be and learning to relate).

The procedures described below will form the basis of the practical part of the internship, and their implementation is subject to both the suitability of the patients and the availability of the center and its workload, with the proposed activities being as follows:



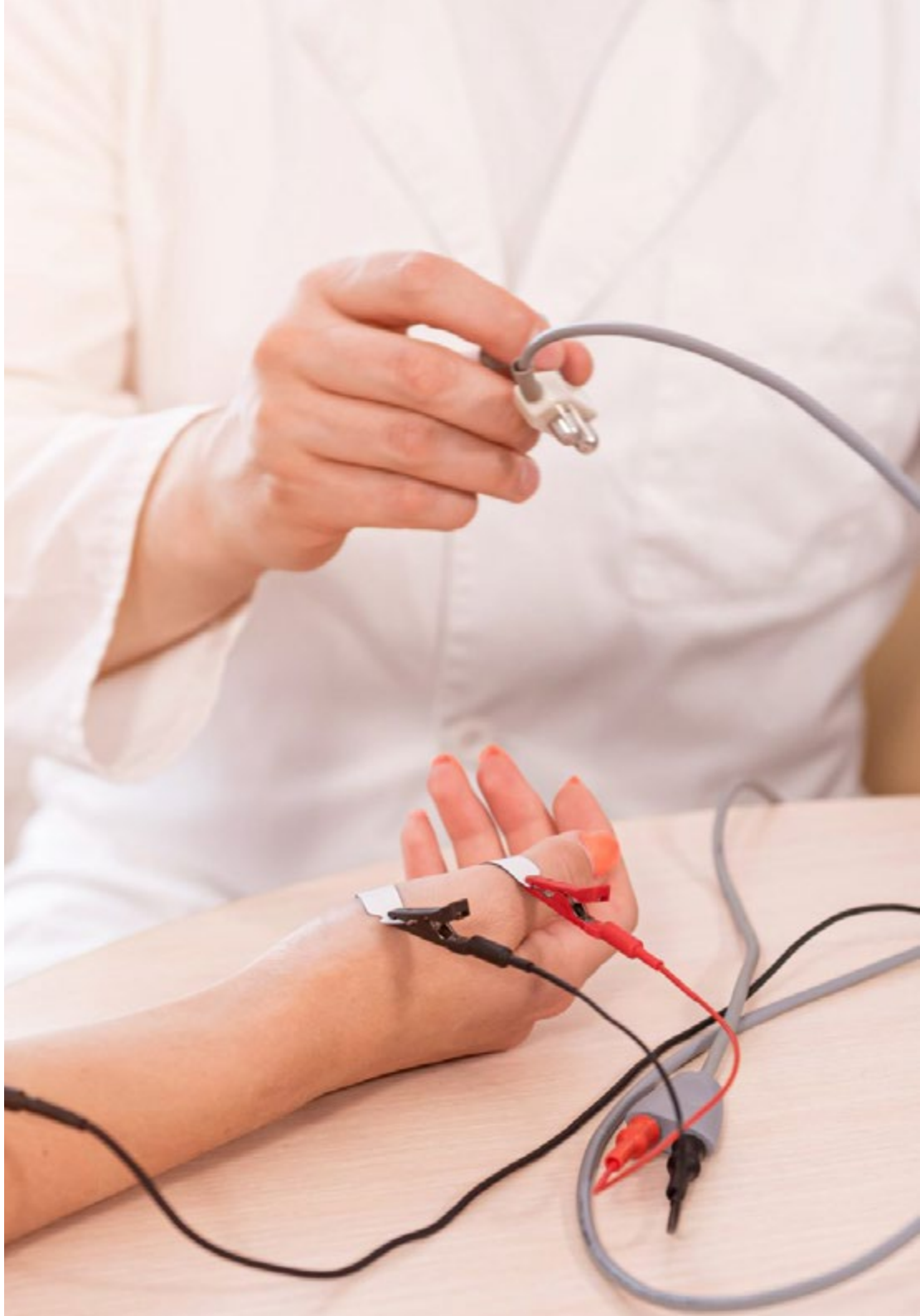
Module	Practical Activity
Precision neurophysiological techniques for monitoring electrical activity of the brain	Implement routine stimulation maneuvers for the adult or infant brain undergoing EEG, including eye closure and opening and intermittent brightness.
	Applying unusual procedures for activation of brain electricity through sleep
	Detect signs of Electroclinical Syndromes, with emphasis on Epilepsy, of the neonate and infant by means of EEG.
	EEG and Video-EEG monitoring of patients in Intensive Care Units and comatose patients
Neurophysiological Techniques in the Diagnosis of Neuromuscular Diseases	Apply Electromyography (EMG) to diagnose nerve and muscle disorders, as well as spinal nerve root compression.
	Perform neurophysiological studies of the facial and trigeminal nerves through EMG.
	Examine the nerve response of upper and lower limbs from Neuromuscular Ultrasound.
	Use percutaneous interventional techniques for neuromuscular conditions.
	Identify Myasthenia Gravis from EMG and nerve conduction studies.
Intraoperative Neurophysiological Monitoring (NIM) Applications	Surgical intervention of tumors located in the nervous system (medulla, nerves, brain) through MNI.
	Perform function mapping to determine the location of eloquent brain areas and avoid them during surgery.
	To explore intraoperative language functioning during brain lesionectomies.
	Apply NIM protocols for spinal cord, lumbar spine, sacral and vascular procedures.
Clinical e Instrumental Diagnosis of Sleep Disorders	Detect Hypersomnias by multiple sleep latency test
	Intervening narcolepsy using Polysomnograms
	Evaluate parasomnias and insomnia by EEG and Polysomnograms.
	Movement Disorder Evaluation during Sleep
Neurophysiological Techniques for Therapeutic Purposes: Invasive and NonInvasive Neuromodulation	Prevent neuralgia or numbness in the arms or legs by invasive neuromodulation.
	Apply the VNS in Treating Epilepsy and Other Indications
	Botulinum Toxin Use: Cervical dystonia, Blepharospasm, Facial Myokymia, Oromandibular Dystonia, Upper Limb and Trunk Dystonia
	Perform Botulinum Toxin Infiltration Non-invasive with Guidance by Neurophysiological Techniques

Civil Liability Insurance

This institution's main concern is to guarantee the safety of the trainees and other collaborating agents involved in the internship process at the company. Among the measures dedicated to achieve this is the response to any incident that may occur during the entire teaching-learning process.

To this end, this entity commits to purchasing a civil liability insurance policy to cover any eventuality that may arise during the course of the internship at the center.

This liability policy for interns will have broad coverage and will be taken out prior to the start of the practical training period. That way professionals will not have to worry in case of having to face an unexpected situation and will be covered until the end of the internship program at the center.



General Conditions of the Internship Program

The general terms and conditions of the internship program agreement shall be as follows:

1. TUTOR: During the Hybrid Professional Master's Degree, students will be assigned with two tutors who will accompany them throughout the process, answering any doubts and questions that may arise. On the one hand, there will be a professional tutor belonging to the internship center who will have the purpose of guiding and supporting the student at all times. On the other hand, they will also be assigned with an academic tutor whose mission will be to coordinate and help the students during the whole process, solving doubts and facilitating everything they may need. In this way, the student will be accompanied and will be able to discuss any doubts that may arise, both clinical and academic.

2. DURATION: The internship program will have a duration of three continuous weeks, in 8-hour days, 5 days a week. The days of attendance and the schedule will be the responsibility of the center and the professional will be informed well in advance so that they can make the appropriate arrangements.

3. ABSENCE: If the students does not show up on the start date of the Hybrid Professional Master's Degree, they will lose the right to it, without the possibility of reimbursement or change of dates. Absence for more than two days from the internship, without justification or a medical reason, will result in the professional's withdrawal from the internship, therefore, automatic termination of the internship. Any problems that may arise during the course of the internship must be urgently reported to the academic tutor.

4. CERTIFICATION: Professionals who pass the Hybrid Professional Master's Degree will receive a certificate accrediting their stay at the center.

5. EMPLOYMENT RELATIONSHIP: The Hybrid Professional Master's Degree shall not constitute an employment relationship of any kind.

6. PRIOR EDUCATION: Some centers may require a certificate of prior education for the Hybrid Professional Master's Degree. In these cases, it will be necessary to submit it to the TECH internship department so that the assignment of the chosen center can be confirmed.

7. DOES NOT INCLUDE: The Hybrid Professional Master's Degree will not include any element not described in the present conditions. Therefore, it does not include accommodation, transportation to the city where the internship takes place, visas or any other items not listed

However, students may consult with their academic tutor for any questions or recommendations in this regard. The academic tutor will provide the student with all the necessary information to facilitate the procedures in any case.

08

Where Can I Do the Clinical Internship?

The practical stay of this Semipresential Master is distinctive with respect to other academic programs prevailing in the market. During this stage of classroom learning, the neurologist will have access to prestigious health institutions where he/she will apply the subjects learned theoretically in the direct care of patients with various neurological clinical manifestations. For this reason, during 3 weeks, the student will acquire a deeper knowledge of the contents studied and their correct execution in the daily dynamics of care.

Strengthen your theoretical preparation with a 3-week intensive classroom practice in the most prestigious centers in the field of Neurophysiology"

The student will be able to complete the practical part of this Hybrid Professional Master's Degree at the following centers:

Hospital HM La Esperanza

Country: Spain
City: La Coruña

Address: Av. das Burgas, 2, 15705, Santiago de Compostela, A Coruña

Network of private clinics, hospitals and specialized centers distributed throughout Spain.

Related internship programs:
Oncology Nursing
- Clinical Ophthalmology

Hospital HM Rosaleda

Country: Spain
City: La Coruña

Address: Rúa de Santiago León de Caracas, 1, 15701, Santiago de Compostela, A Coruña

Network of private clinics, hospitals and specialized centers distributed throughout Spain.

Related internship programs:
- Hair Transplantation
- Orthodontics and Dentofacial Orthopedics

Hospital HM Modelo

Country: Spain
City: La Coruña

Address: Rúa Virrey Osorio, 30, 15011, A Coruña

Network of private clinics, hospitals and specialized centers distributed throughout Spain.

Related internship programs:
- Anaesthesiology and Resuscitation
- Palliative Care

Hospital HM Nou Delfos

Country: Spain
City: Barcelona

Address: Avinguda de Vallcarca, 151, 08023 Barcelona

Network of private clinics, hospitals and specialized centers distributed throughout Spain.

Related internship programs:
- Aesthetic Medicine
- Clinical Nutrition in Medicine

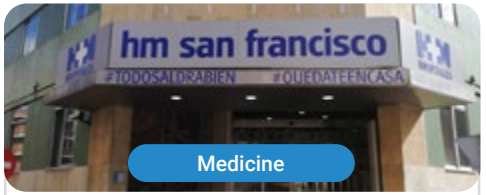
Hospital HM Regla

Country: Spain
City: León

Address: Calle Cardenal Landázuri, 2, 24003, León

Network of private clinics, hospitals and specialized centers distributed throughout Spain.

Related internship programs:
- Update on Psychiatric Treatment in Minor Patients



Hospital HM San Francisco

Country: Spain
City: León

Address: C. Marqueses de San Isidro, 11, 24004, León

Network of private clinics, hospitals and specialized centers distributed throughout Spain.

Related internship programs:
- Update in Anesthesiology and Resuscitation
- Nursing in the Traumatology Department

Hospital HM Montepríncipe

Country: Spain
City: Madrid

Address: Av. de Montepríncipe, 25, 28660, Boadilla del Monte, Madrid

Network of private clinics, hospitals and specialized centers distributed throughout Spain.

Related internship programs:
- Palliative Care
- Aesthetic Medicine

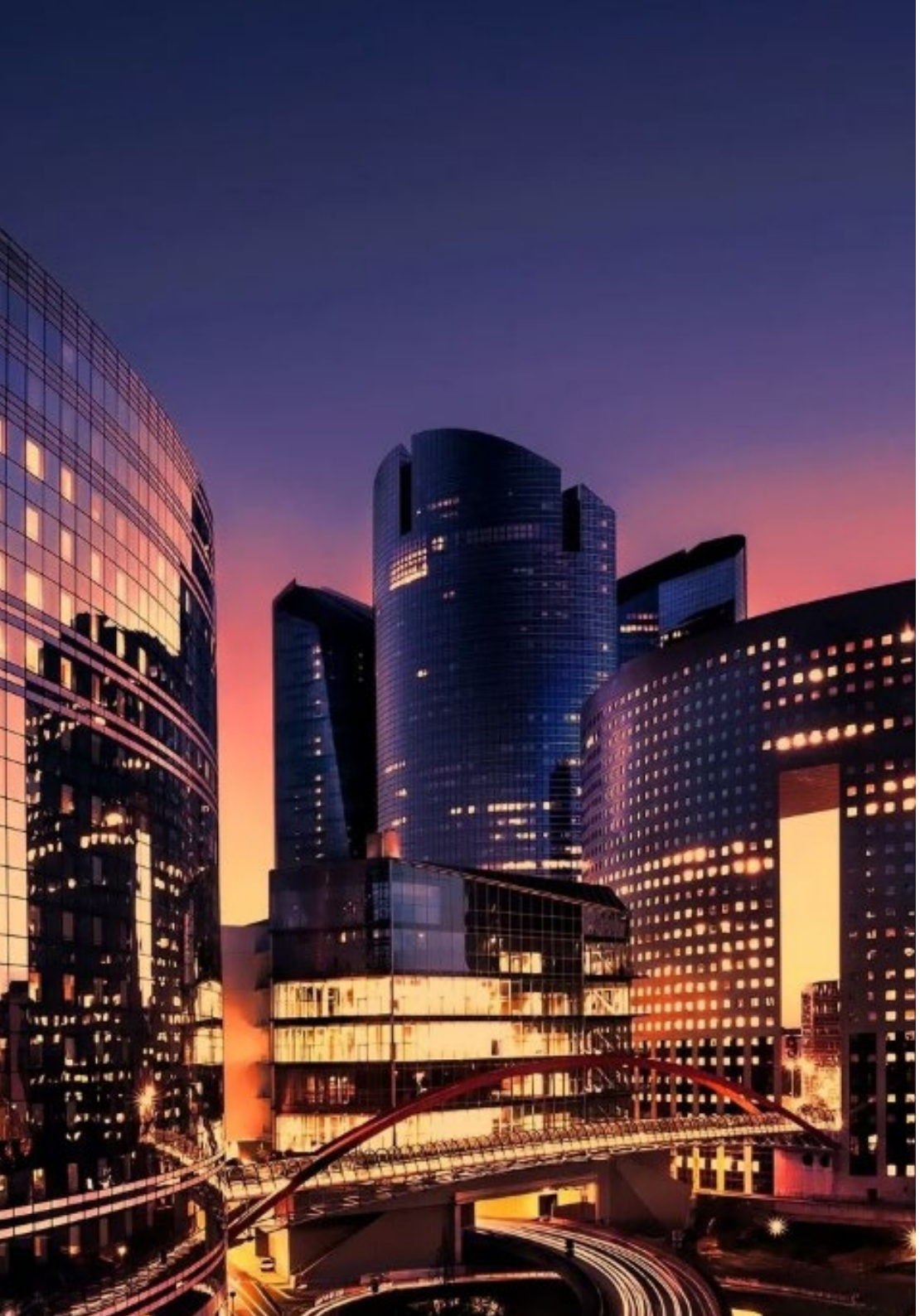
Hospital HM Sanchinarro

Country: Spain
City: Madrid

Address: Calle de Oña, 10, 28050, Madrid

Network of private clinics, hospitals and specialized centers distributed throughout Spain.

Related internship programs:
- Anaesthesiology and Resuscitation
- Palliative Care



Hospital HM Vallés

Country: Spain
City: Madrid

Address: Calle Santiago, 14, 28801, Alcalá de Henares, Madrid

Network of private clinics, hospitals and specialized centers distributed throughout Spain.

Related internship programs:
- Gynecologic Oncology
- Clinical Ophthalmology

Hospital HM Madrid

Country: Spain
City: Madrid

Address: Pl. del Conde del Valle de Súchil, 16, 28015, Madrid

Network of private clinics, hospitals and specialized centers distributed throughout Spain.

Related internship programs:
- Palliative Care
- Anaesthesiology and Resuscitation

Policlínico HM Virgen del Val

Country: Spain
City: Madrid

Address: Calle de Zaragoza, 6, 28804, Alcalá de Henares, Madrid

Network of private clinics, hospitals and specialized centers distributed throughout Spain.

Related internship programs:
- Diagnosis in Physiotherapy
- Physiotherapy in Early Care

Policlínico HM Arapiles

Country: Spain
City: Madrid

Address: C. de Arapiles, 8, 28015, Madrid

Network of private clinics, hospitals and specialized centers distributed throughout Spain.

Related internship programs:
- Anaesthesiology and Resuscitation
- Pediatric Dentistry

Hospital HM Torrelodones

Country: Spain
City: Madrid

Address: Av. Castillo Olivares, s/n, 28250, Torrelodones, Madrid

Network of private clinics, hospitals and specialized centers distributed throughout Spain.

Related internship programs:
- Anaesthesiology and Resuscitation
- Palliative Care

Policlínico HM Cruz Verde

Country: Spain
City: Madrid

Address: Plaza de la Cruz Verde, 1-3, 28807, Alcalá de Henares, Madrid

Network of private clinics, hospitals and specialized centers distributed throughout Spain.

Related internship programs:
- Advanced Clinical Podiatry
- Optical Technologies and Clinical Optometry

Policlínico HM Imi Toledo

Country: Spain
City: Toledo

Address: Av. de Irlanda, 21, 45005, Toledo

Network of private clinics, hospitals and specialized centers distributed throughout Spain.

Related internship programs:
- Electrotherapy in Rehabilitation Medicine
- Hair Transplantation

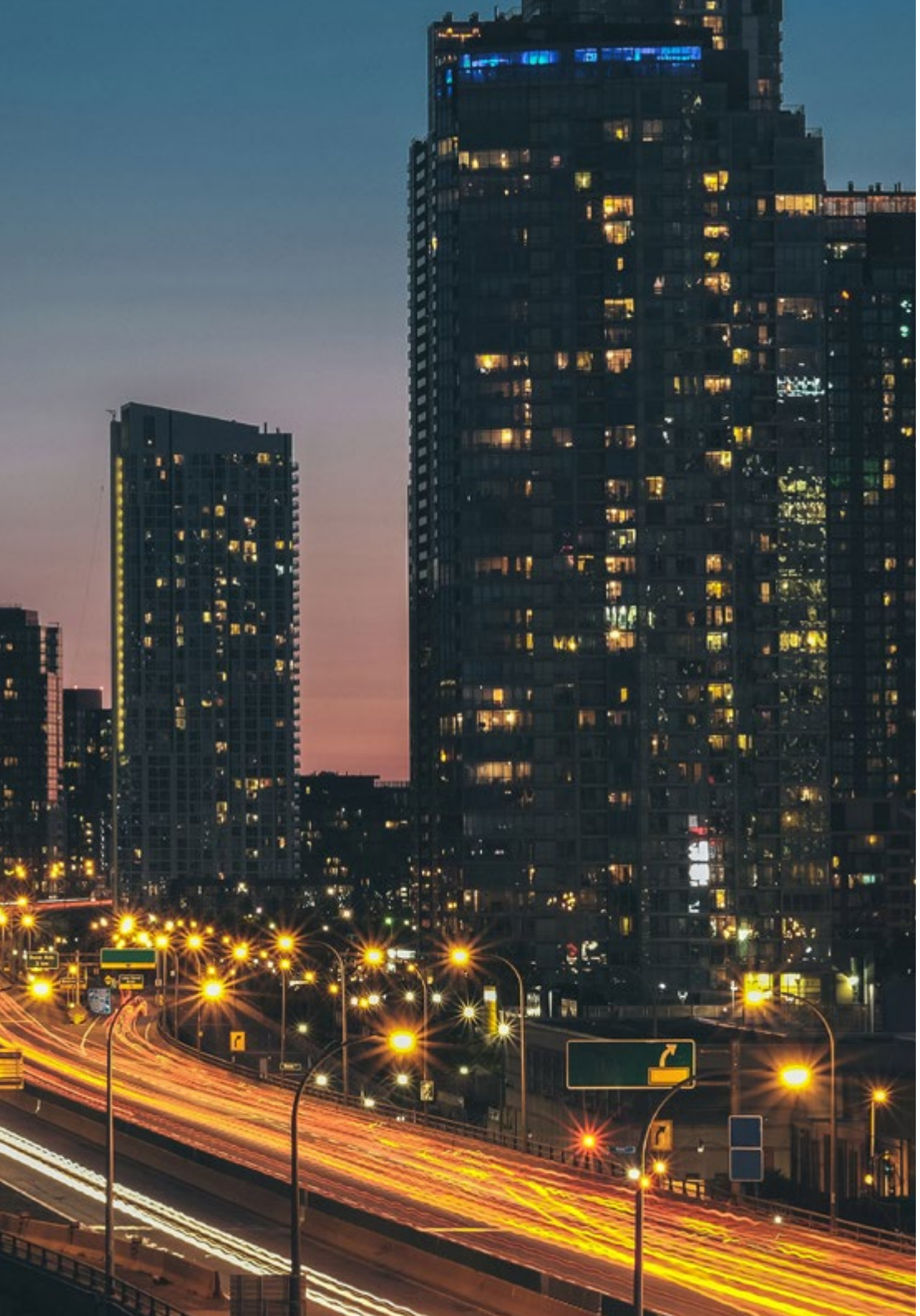
HM CINAC Barcelona

Country: Spain
City: Barcelona

Address: Avenida de Vallcarca, 151, 08023, Barcelona

Network of private clinics, hospitals and specialized centers distributed throughout Spain.

Related internship programs:
Neurodegenerative Diseases
Neurology Nursing



Medicine

Neurotoc

Country
Spain

City
Barcelona

Address: Calle Padilla, 327-329, Ent. 68, 08025 Barcelona

Center for Intraoperative Neurophysiological Monitoring

Related internship programs:
- Update on Neurophysiological Diagnosis and Treatment

Enroll now and advance in your field of work with a comprehensive program that will allow you to put into practice everything you have learned"

09

Methodology

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

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

Discover Relearning, a system that abandons conventional linear learning, to take you through cyclical teaching systems: a way of learning that has proven to be extremely effective, especially in subjects that require memorization"

At TECH we use the Case Method

What should a professional do in a given situation? Throughout the program, students will 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:

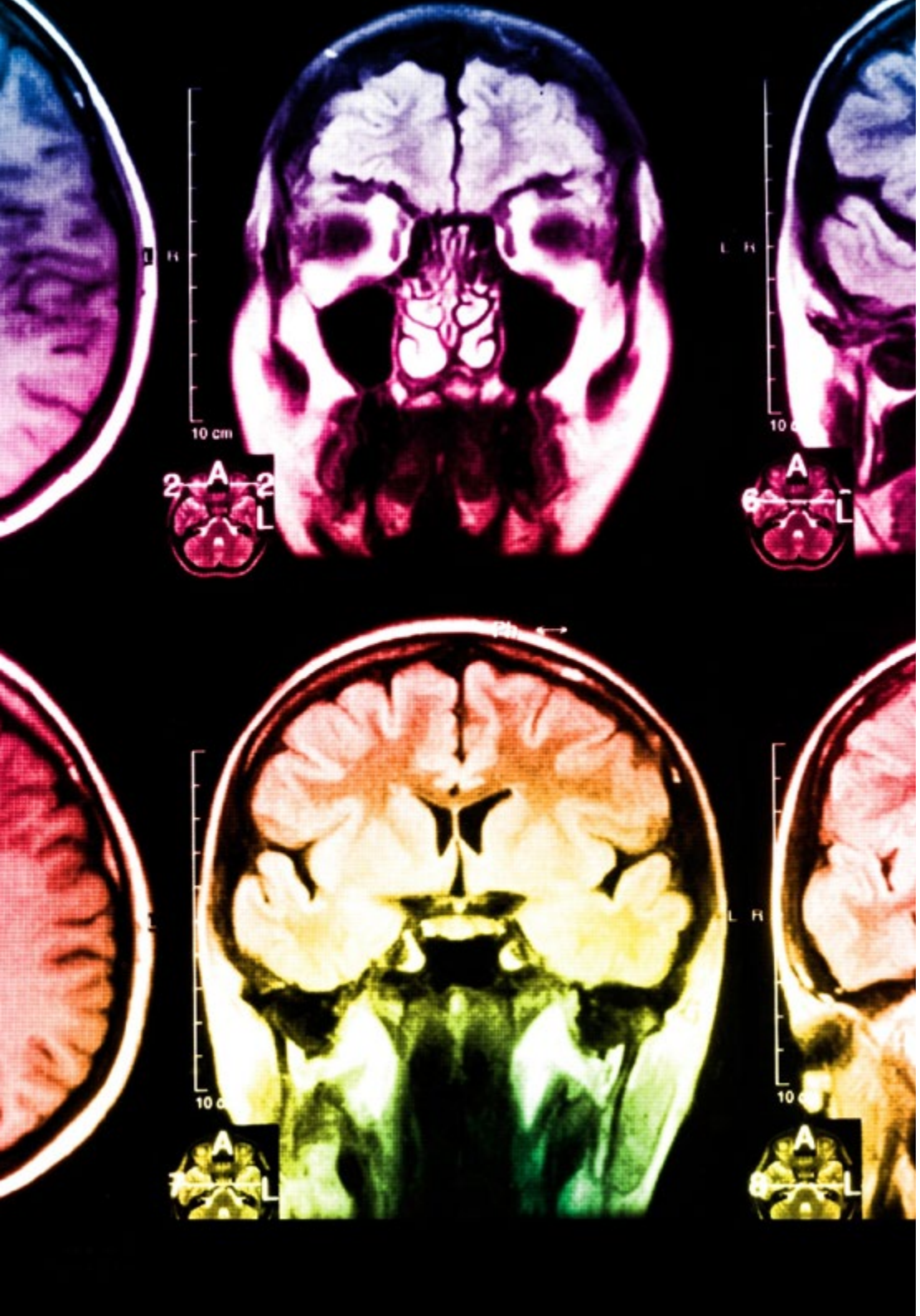
1. Students who follow this method not only achieve the assimilation of concepts, but also a development of their mental capacity, through exercises that evaluate real situations and the application of knowledge.
2. Learning is solidly translated into practical skills that allow the student to better 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.



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.

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.

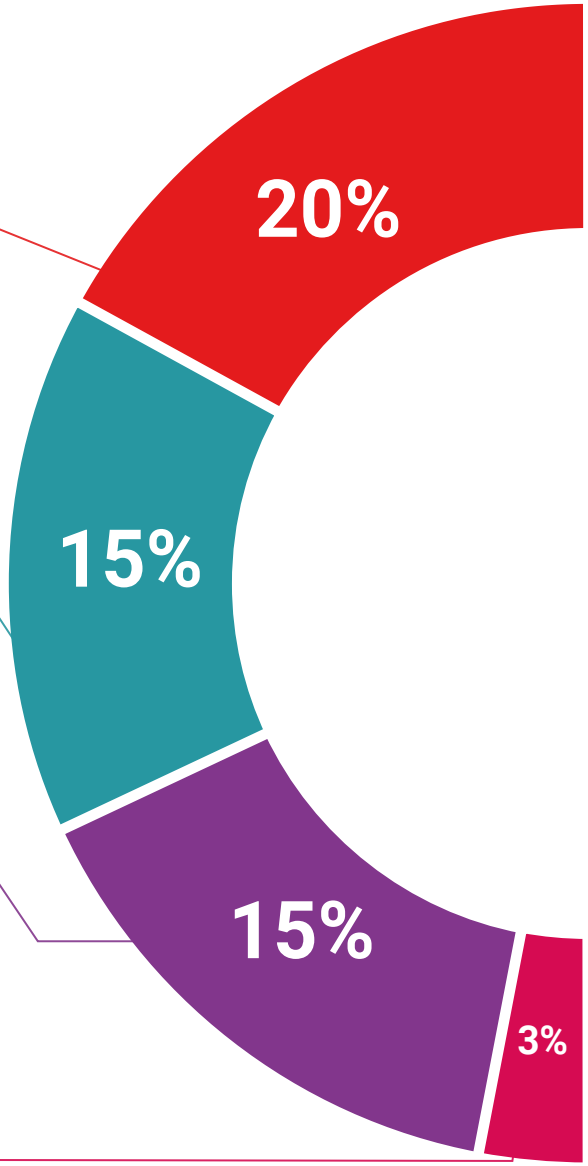
Interactive Summaries

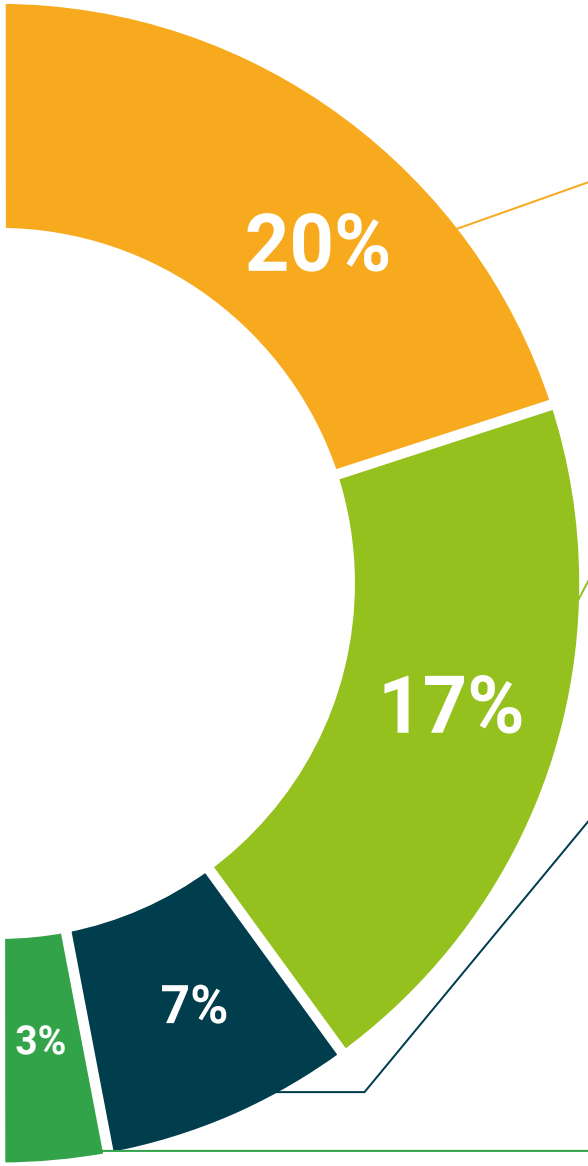
The TECH team presents the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

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.

10

Certificate

The Semipresential Master's Degree in Neurophysiological Diagnosis and Treatment, in addition to the most rigorous and updated training, access to a Hybrid Professional Master's Degree issued by TECH Global University.

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

This program will allow you to obtain your **Hybrid Professional Master's Degree diploma in Update on Neurophysiological Diagnosis and Treatment** endorsed by **TECH Global University**, the world's largest online university.

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

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

Title: **Hybrid Professional Master's Degree in Update on Neurophysiological Diagnosis and Treatment**

Course Modality: **Hybrid (Online + Clinical Internship)**

Duration: **12 months**

Certificate: **TECH Global University**

Recognition: **60 + 5 ECTS Credits**


tech global university

Mr./Ms. _____, with identification document _____
has successfully passed and obtained the title of:

Hybrid Professional Master's Degree in Update on Neurophysiological Diagnosis and Treatment

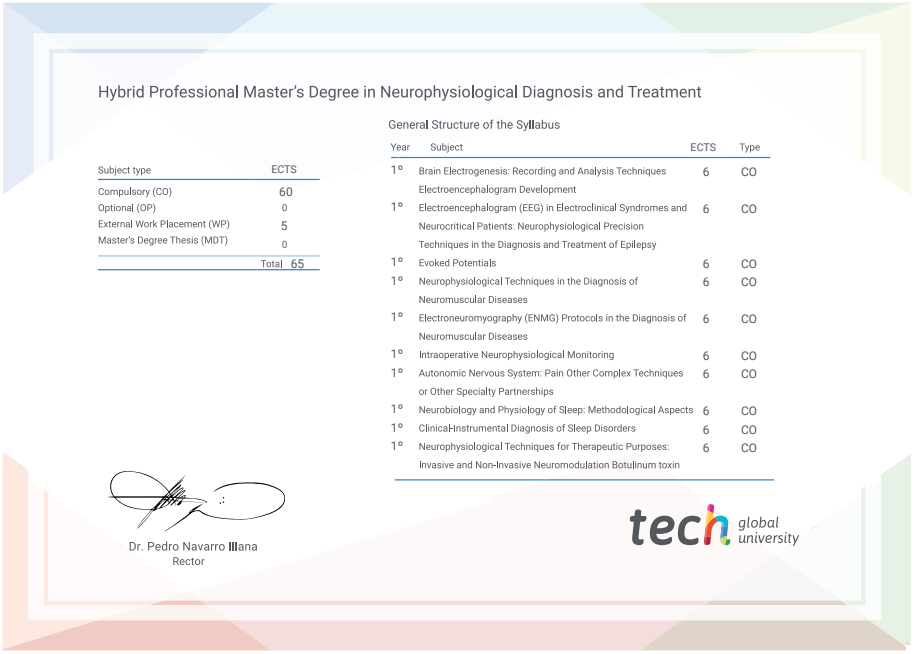
This is a program of 1.620 hours of duration equivalent to 65 ECTS, with a start date of dd/mm/yyyy and an end date of dd/mm/yyyy.

TECH Global University is a university officially recognized by the Government of Andorra on the 31st of January of 2024, which belongs to the European Higher Education Area (EHEA).

In Andorra la Vella, on the 28th of February of 2024

Dr. Pedro Navarro Illana
Rector

This qualification must always be accompanied by the university degree issued by the competent authority to practice professionally in each country. Unique TECH Code: AFWORD23S techtitute.com/certificates


Hybrid Professional Master's Degree in Neurophysiological Diagnosis and Treatment

Subject type	ECTS
Compulsory (CO)	60
Optional (OP)	0
External Work Placement (WP)	5
Master's Degree Thesis (MDT)	0
Total	65

General Structure of the Syllabus

Year	Subject	ECTS	Type
1º	Brain Electrogenesis: Recording and Analysis Techniques Electroencephalogram Development	6	CO
1º	Electroencephalogram (EEG) in Electroclinical Syndromes and Neurocritical Patients: Neurophysiological Precision Techniques in the Diagnosis and Treatment of Epilepsy	6	CO
1º	Evoked Potentials	6	CO
1º	Neurophysiological Techniques in the Diagnosis of Neuromuscular Diseases	6	CO
1º	Electroneuromyography (ENMG) Protocols in the Diagnosis of Neuromuscular Diseases	6	CO
1º	Intraoperative Neurophysiological Monitoring	6	CO
1º	Autonomic Nervous System: Pain Other Complex Techniques or Other Specialty Partnerships	6	CO
1º	Neurobiology and Physiology of Sleep: Methodological Aspects	6	CO
1º	Clinical-Instrumental Diagnosis of Sleep Disorders	6	CO
1º	Neurophysiological Techniques for Therapeutic Purposes: Invasive and Non-Invasive Neuromodulation Botulinum toxin	6	CO

Dr. Pedro Navarro Illana
Rector

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

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Hybrid Professional Master's Degree

Update on Neurophysiological Diagnosis and Treatment

Modality: **Hybrid (Online + Clinical Internship)**

Duration: **12 months**

Certificate: **TECH Global University**

60 + 5 créditos ECTS

Hybrid Professional Master's Degree

Update on Neurophysiological Diagnosis and Treatment

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