

# Hybrid Professional Master's Degree Neurosurgery





## Hybrid Professional Master's Degree Neurosurgery

Modality: Hybrid (Online + Clinical Internship)

Duration: 12 months

Certificate: TECH Global University

60 + 5 créditos ECTS

Website: [www.techtitute.com/in/medicine/hybrid-professional-master-degree/hybrid-professional-master-degree-neurosurgery](http://www.techtitute.com/in/medicine/hybrid-professional-master-degree/hybrid-professional-master-degree-neurosurgery)

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# 01

# Introduction

In recent decades, advances in neurosurgery have led to the emergence of complex minimally invasive interventional techniques and the implementation of increasingly sophisticated technologies. Also, keeping up to date on all these innovations can be challenging for specialists. For this reason, this program provides all the theoretical aspects of the most recent application in this specialty, from an innovative didactic modality. After completing 1,500 hours of theoretical learning on the elements of reference, the physician will apply the knowledge acquired in a clinical practice, face-to-face and intensive, to be developed in international health reference institutions.





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*Get up to date on the latest trends in the field of Neurosurgery alongside internationally renowned teaching experts and complete a comprehensive, intensive and immersive hands-on stay”*

For several years now, medical science has been experimenting with the development of much more efficient surgical techniques for the removal of brain tumors. As a result of this line of research, much more comprehensive technologies and procedures have emerged that provide solutions to this and other neuropathies. However, it is not easy for specialists to keep constantly updated on the theoretical and practical aspects of these innovations. In order to offer a quality academic preparation, different from other programs in the market, TECH has developed a unique didactic modality that meets the indispensable requirements to update the neurosurgeon on the complexities of recent discoveries within his specialty.

Thus arises this Hybrid Professional Master's Degree in Neurosurgery which, unlike most of the other Certificates, is composed of two distinct educational stages. First, the physician will study different concepts and topics of interest, from a 100% online and interactive learning platform. Throughout 1,500 hours, you will be able to access all the contents freely, without worrying about continuous evaluations or pre-established schedules. You will also be able to use modern teaching methodologies, such as Relearning, to strengthen your mastery of all aspects of this Certificate.

The specialist must then complete a 3-week practical internship in a prestigious medical facility. The entities selected by TECH for this face-to-face, comprehensive and immersive phase have the most advanced technology in Neurosurgery and the resources for other related procedures. In this clinical practice, the neurosurgeon will exchange with experts of international prestige. In turn, it will be supervised by an assistant tutor, in charge of perfecting its praxis for the integration of new surgical trends. Upon completion of both phases of studies, graduates will achieve notoriety for their broad knowledge of the most recent considerations in this branch of medicine and a professional practice of excellence, focused on the quality of life of patients.

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

- ♦ 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
- ♦ Assessment and monitoring of patients with different neural pathologies that require surgical intervention to improve their quality of life
- ♦ Comprehensive systematized action plans for the main pathologies of the brain
- ♦ Presentation of hands-on workshops on interventional diagnostic and therapeutic techniques
- ♦ An algorithm-based interactive learning system for decision-making in the clinical situations presented throughout the course
- ♦ 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
- ♦ In addition, you will be able to carry out a clinical internship in one of the best hospitals in the world



*Thanks to this Certificate, you will gain the most rigorous practical skills in a specialized clinical practice in Neurosurgery lasting only 3 weeks"*

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*With 10 theoretical modules, this Hybrid Professional Master's Degree has brought together the main novelties in relation to Neurosurgery and will also give you the opportunity to assimilate them easily from an online platform without restrictive study schedules"*

In this Professional Master's Degree proposal, of a professionalizing nature and hybrid modality, the program is aimed at updating Neurosurgery professionals who wish to broaden their vision of the latest surgical procedures in the specialty. The contents are based on the latest scientific evidence, and oriented in a didactic way to integrate theoretical knowledge with practical elements and thus, allow decision making in patient management.

Thanks to its multimedia content developed with the latest educational technology, they will allow the neurosurgery professional to obtain a situated and contextual learning, that is, a simulated environment that will provide an immersive learning programmed to train in real situations. The design of this program focuses on Problem Based Learning, through which the student will have to try to solve the different professional practice situations that will arise throughout the program. For this purpose, the student will be assisted by an innovative interactive video system created by renowned experts.

*Don't miss the opportunity to update your surgical knowledge in a fast, flexible, immersive way and from anywhere in the world thanks to TECH's interactive platform.*

*The practical part of this Certificate is 100% face-to-face and immersive, which will give you access to real cases that will help you perfect your new skills.*



# 02

## Why Study this Hybrid Professional Master's Degree?

The methodologies of neurosurgical approach are constantly being renewed nowadays. In order to keep up to date on these aspects, the professional cannot be satisfied with theoretical considerations on the subject. It also requires practical skills that demonstrate fluency and ability to handle the latest tools. Therefore, TECH, supported by this Hybrid Professional Master's Degree, has integrated the didactic study, from a 100% online learning platform, with a subsequent face-to-face stay as a clinical practice. Both educational phases will help the specialist to develop the most sought-after competencies in this sector of medicine.







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*This Hybrid Professional Master's Degree provides a world-class internship that will expand your experience, enrich your resume and bring you to the forefront of care in the complex field of Neurosurgery"*

### 1. Updating from the latest technology available

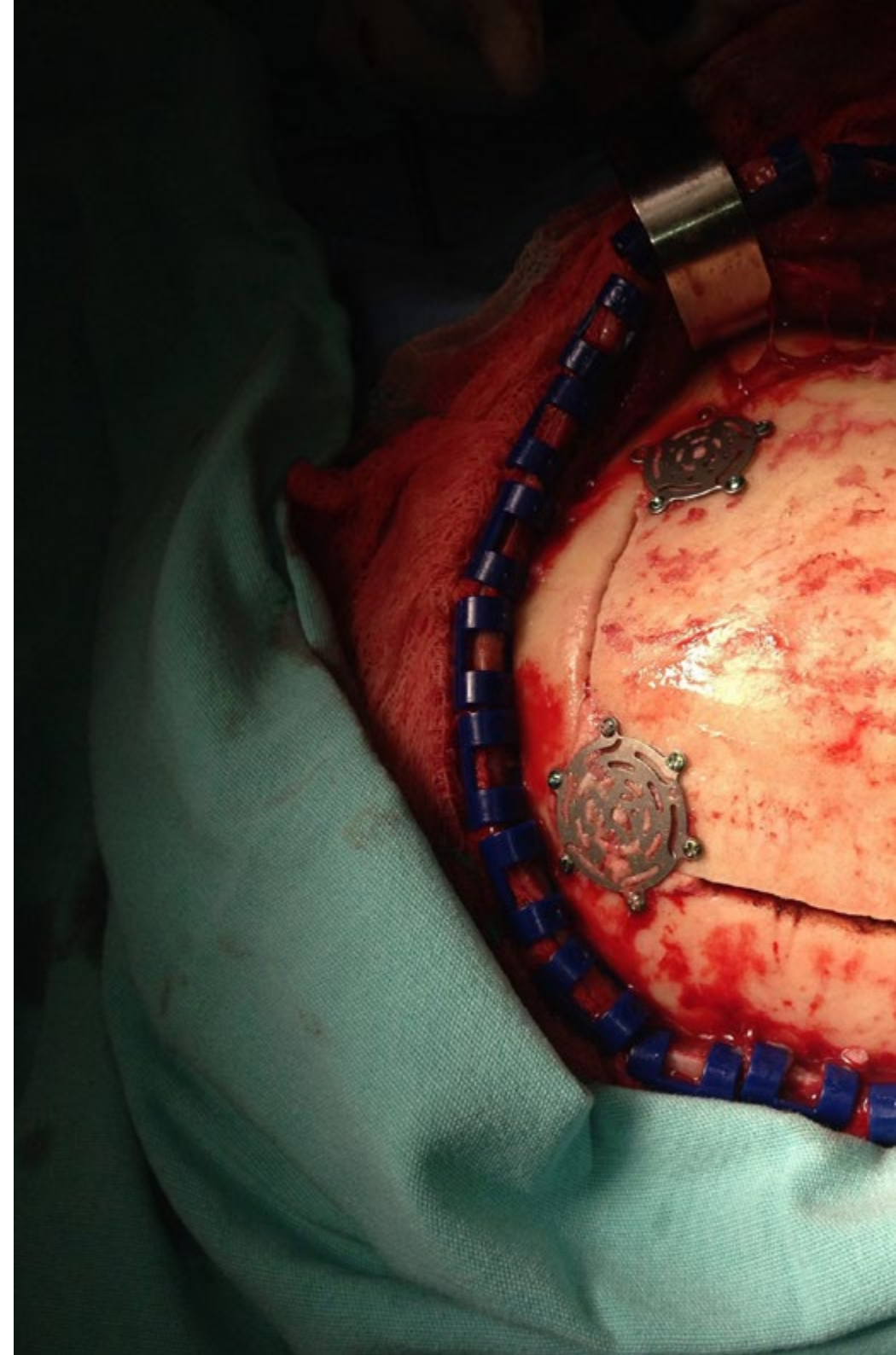
With the help of this Certificate, the surgeon will master rigorous surgical techniques that are currently supported by innovative and recently developed technologies. From the approach of real cases, with different pathologies, the physician will be able to understand the applications and the correct management of all these tools for health care intervention

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

This program offers personalized support from leading neurosurgery experts in two distinct stages. At the beginning, a faculty composed of experienced teachers will interact with them to clarify doubts and concepts of interest. The second stage, dedicated to the practical internship, will provide a designated tutor who will integrate the specialist in different care dynamics

### 3. Entering First-Class Clinical Environments

TECH has carefully selected centers equipped with the best clinical and surgical resources for the development of the on-site internship of this Certificate. Thanks to this, the surgeon will be able to be linked to cutting-edge institutions, with the best technologies and work complements. At the same time, they will be able to test the demands of a professional area considered rigorous and exhaustive in the health sector.





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

This program consists of 1,500 educational hours whose topics of interest will then be applied by the physician in a practical stay of 3 weeks' duration. In this way, you will be able to develop highly rigorous skills, in close contact with leading experts and treating real patients with various pathologies

#### **5. Expanding the Boundaries of Knowledge**

This Hybrid Professional Master's Degree is unique in its kind as it facilitates surgeons' access to select centers dedicated to the health sector and dialogue with its best professionals. This is possible thanks to the network of agreements and contacts available to TECH as the largest digital university of the moment

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

# 03 Objectives

This training program integrates, better than any other, the main novelties in the field of Neurosurgery. It includes techniques, surgical tools, procedures for the reduction of brain tumors, among many other topics. At the same time, the Certificate assures the specialists the theoretical and practical mastery of all the elements, thus offering one of the most complete academic training in the educational market.





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*Improve the clinical management of your patients through the efficient use of neurosurgical techniques that you will master through this very complete Certificate"*



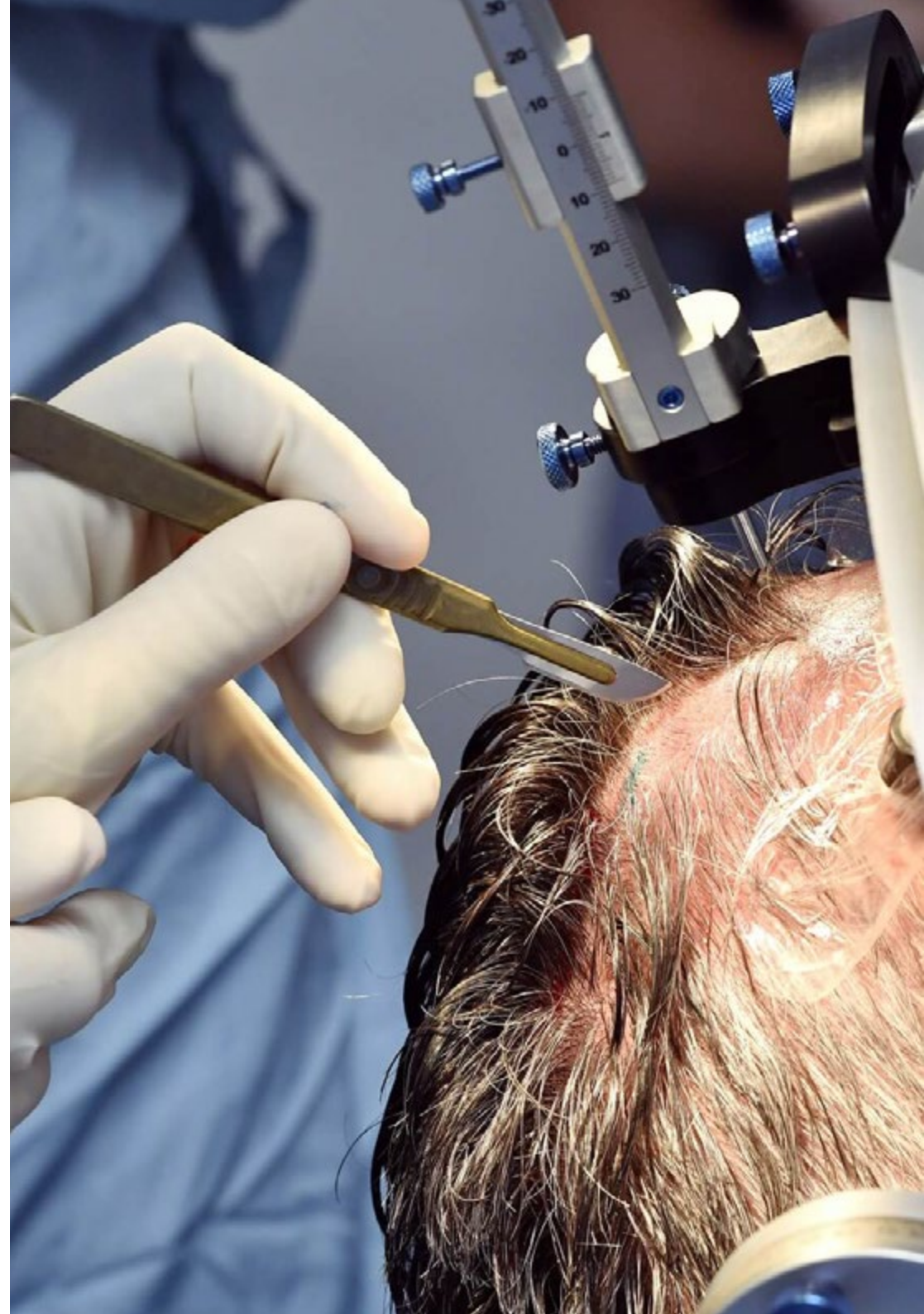
## General Objective

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- Thanks to this Hybrid Professional Master's Degree in Neurosurgery, the physician will examine the latest diagnostic and therapeutic guidelines of the specialty, which, in turn, are based on modern scientific evidence of recent application. In this way, they will be able to broaden their knowledge from a practical perspective and efficiently incorporate it into their daily professional practice. By examining the dissimilar budgets of this program, TECH guarantees its graduates the development of the most demanding and rigorous competences in this health area

“

*Enrich your professional practice with the latest advances in Neurosurgery that have been collected by TECH in this very complete Hybrid Professional Master's Degree"*





## Specific Objectives

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### Module 1. General Concepts in Neurosurgery. Intracranial Infectious Pathology

- Understand the importance of positioning the neurosurgical patient and how it can influence the surgery, as well as to know the most frequently used positions
- Learn how collaboration with other specialties and the interaction of various factors during surgery (neurophysiological monitoring, anesthesia) and in the immediate postoperative period (critical care) can determine the success of the surgery and neurosurgical patient prognosis
- Understand the impact that technological tools, especially intraoperative localization techniques, have had on neurosurgery, as well as the implications that the application of robotic surgery may have in the coming years
- Learn the importance that cost-effectiveness studies are acquiring, becoming familiar with the terminology and concepts used, as well as their applications in the field of neurosurgery
- Develop an in-depth understanding of the importance of postoperative infection in neurosurgery, to acquire infectious prophylaxis guidelines, as well as the management of brain abscesses

### Module 2. Cranioencephalic Trauma. Peripheral Nerve Pathology

- Learn the precise diagnostic indications to correctly evaluate and classify patients with TBI from the point of view of emergency care
- Describe and understand the usefulness of neuromonitoring systems in patients with severe TBI, and correlate the information they provide with the therapeutic algorithms applied in intensive care units
- Acquire in-depth knowledge of the surgical indications in patients with traumatic intracranial lesions, as well as the main prognostic determinants
- Recognize the uniqueness in the management of two specific situations of patients with TBI, such as patients with anticoagulant therapy and pediatric patients
- Learn the concepts of peripheral nerve pathology that may most frequently require neurosurgical evaluation, and the application of new technological advances to its treatment

### Module 3. Vascular Pathology I. Subarachnoid Hemorrhage and Intracranial Aneurysmal Pathology

- Specialize in the basic principles of diagnosis and treatment of subarachnoid hemorrhage, both from a neurosurgical perspective and from the perspective of the intensivist
- Identify the most important complications, their timeline, and basic tools for preventing and treating them
- Learn the clinical characteristics of cerebral aneurysms according to their location and size, correlating it with the clinical presentation and prognosis
- Understand the differential characteristics of certain types of aneurysms according to their etiology
- Discuss the advantages and disadvantages of surgical and endovascular treatment in the treatment of cerebral aneurysms, and know the main indications of each of the therapeutic alternatives depending on the location and shape of the aneurysm
- Gain in-depth knowledge of the main multicenter studies whose results and conclusions have determined the management of unruptured cerebral aneurysms, and how they have modified the choice of the type of treatment

### Module 4. Vascular Pathology II. Vascular Malformations and Neurosurgical Treatment of Stroke

- Learn to identify the different types of vascular malformations and their differences in morphology and bleeding risk
- Describe the different therapeutic modalities in the management of vascular malformations, understanding the need for a multidisciplinary approach and the possibility of combining different treatments
- Define the role of neurosurgery in the treatment of both hemorrhagic and ischemic stroke, providing examples that help to understand the indications for surgery and its role in the overall therapeutic management required for this type of patient

### Module 5. Tumor Pathology I

- ♦ Fully understand the histological and molecular basis of the classification of glial tumors and the prognostic and therapeutic implications derived from it, as well as learning the differential clinical and radiological characteristics of high-grade and low-grade glial tumors
- ♦ Become familiar with the advances that have been adopted in the surgical treatment of glial brain tumors and how their application is decisive in improving patient prognosis
- ♦ Recognize the importance of preserving neurological function in glial tumor surgery and know the tools available in neurosurgery to achieve this goal
- ♦ Learn the role of other adjuvant therapies (radiotherapy and chemotherapy) in the treatment of brain gliomas and their contribution to improving prognosis

### Module 6. Tumor Pathology II

- ♦ Discuss the surgical indications in highly prevalent pathologies in neurosurgery such as metastases and meningiomas and the role of other alternative treatments
- ♦ Acquire in-depth knowledge of the approaches to the cerebellopontine angle in the treatment of acoustic neuroma and other cerebellopontine angle tumors, discuss the advantages and disadvantages of each approach and its indication according to clinical and anatomical variables
- ♦ Analyze the key points that have determined the success of endoscopic approaches from skull base tumors, as well as their application according to each type of tumor lesion
- ♦ Identify the unique characteristics of tumors in specific locations such as those of the intraventricular and pineal region, which determine highly specific diagnostic processes and surgical approaches

### Module 7. Functional Neurosurgery

- ♦ Manage the need for a multidisciplinary approach to epilepsy surgery to achieve excellent results in terms of seizure control and absence of neurological sequelae
- ♦ Learn the main epilepsy conditions that can benefit from surgical treatment and the procedures commonly used in surgical practice
- ♦ Provide the basis for understanding the mechanisms of deep brain stimulation and neuroablative interventions and their indication in the treatment of movement disorders. An important objective of this module is to understand the ongoing evolution of these therapies and to anticipate the direction in which the next advances in this field will be heading
- ♦ Highlight the role of neurosurgical therapies in the treatment of psychiatric illnesses, understanding how advances in other branches of Neurosurgery have been transferred to psychosurgery
- ♦ Specialize in the treatments available in neurosurgery that can be used in the treatment of drug-resistant chronic pain, distinguishing the differences in characteristics and prognosis between neuropathic and nociceptive pain

### Module 8. Pediatric Neurosurgery and CSF Pathology

- ♦ Acquire in-depth knowledge of the different craniospinal malformations that can occur in infancy
- ♦ Learn the most frequent types of craniosynostosis, with special relevance of postural cranial deformities and management guidelines in routine clinical practice
- ♦ Apply the differentiating features of vascular and tumor pathology specific to children, identifying the most frequent pathologies in this age group and how the patient's age determines the type of treatment applicable, exemplifying it with relevant clinical cases
- ♦ Describe the types of hydrocephalus and how treatment is selected according to the classification of hydrocephalus, identifying the clinical characteristics of the disorders that most frequently present with hydrocephalus in neurosurgical clinical practice





### **Module 9. Spinal Pathology. Degenerative Spine Conditions**

- ♦ Use the recommendations of the consensus guidelines published in the medical literature regarding the indications for surgery in the most frequent degenerative lumbar pathology, such as degenerative disc disease, disc herniation, and canal stenosis with or without spondylolisthesis
- ♦ In-depth knowledge of the precise indications for lumbar fusion in spinal degenerative pathology, in order to avoid over-indication of these techniques. Become familiar with the new lumbar fusion techniques as an alternative to the classic posterior approaches
- ♦ Apply the revolution brought about by the use of minimally invasive techniques in spine surgery and the knowledge of sagittal balance and its impact on surgical indications
- ♦ Develop an in-depth understanding of the importance of the choice of surgery in cervical pathology, both in relation to the type of surgery (fusion versus disc prosthesis) in cervical disc herniations and the approach (posterior versus anterior, or combined) in cervical spondyloarthritic myelopathy
- ♦ Describe the different types of surgical approaches used in the treatment of dorsal disc herniation and how their use is determined in each particular case by the radiological characteristics and clinical manifestations

### **Module 10. Spinal Pathology. Tumor, Fracture, and Infection**

- ♦ Utilize the various classifications used for the evaluation of the post-traumatic spinal cord injury patient and understand their value in prognosis
- ♦ Understand the evolution of the treatment of post-traumatic spinal cord injury and correlate it with its impact on the functional prognosis of the patients
- ♦ Describe the most common types of vertebral fractures, with special attention to the most commonly used classifications and how they determine the type of treatment
- ♦ Manage spinal and intrathecal tumor pathology routinely treated in neurosurgery
- ♦ Manage the treatment guidelines for spondylodiscitis and what are the indications for surgery

# 04 Skills

With the skills and techniques included in this program, the neurosurgeon will be able to elevate his or her professional career to a higher level of excellence and prestige. This is possible thanks to TECH's commitment, at all times, to a rigorous and demanding education so that all its graduates acquire the skills most in demand in the healthcare sector.





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*Enroll in TECH and you will incorporate into your daily work the latest minimally invasive surgery techniques that can be performed today for the approach of neuropathies and brain tumors”*



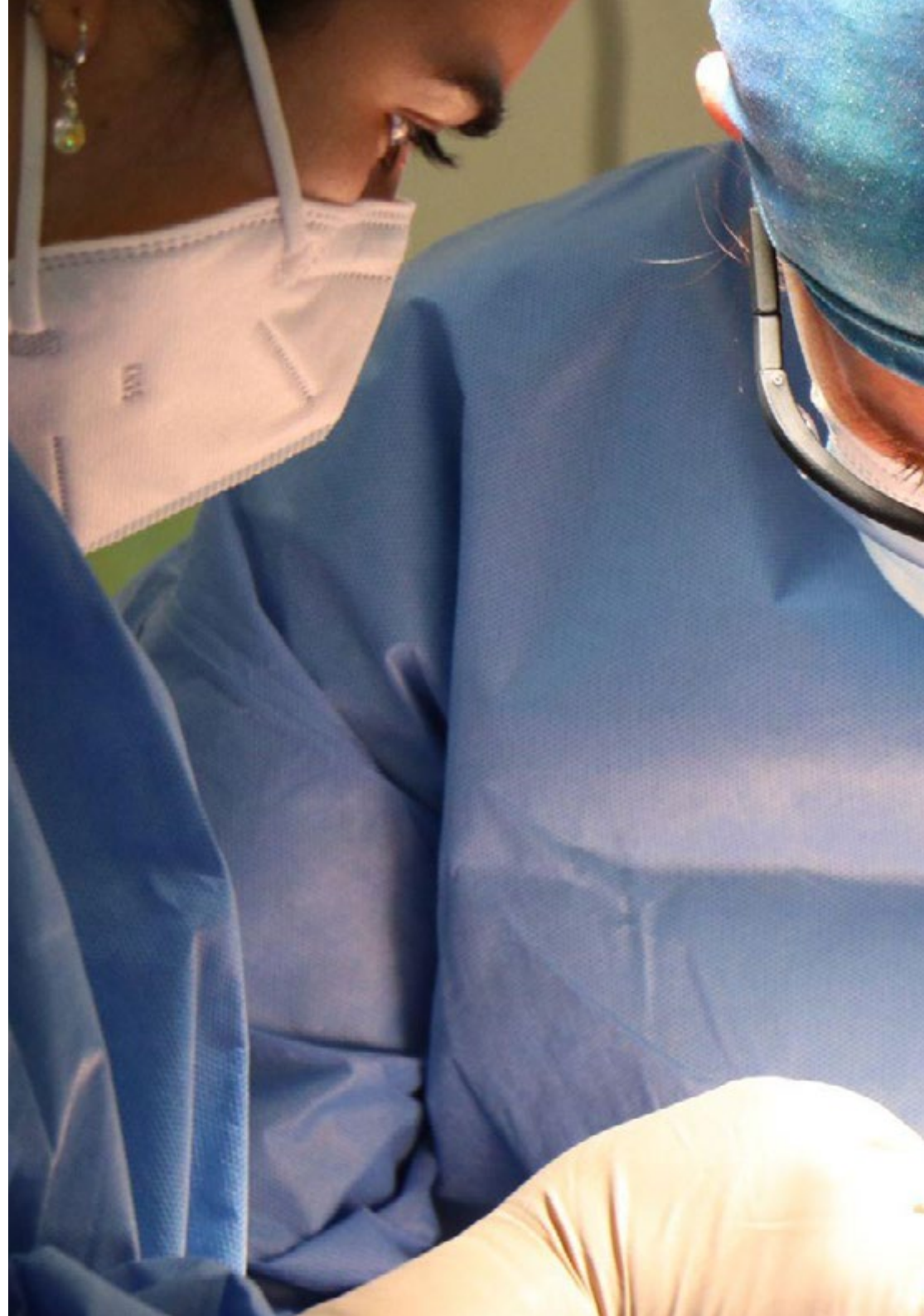
## General Skills

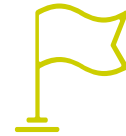
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- To have a global and updated vision of Neurosurgery
- Handle itself as well as of new avenues of development that will be applied in the immediate future of Neurosurgery and its contributions to other related specialties in the treatment and diagnosis of multiple common pathologies

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*Acquire the most updated knowledge in the area of Neurosurgery through a study modality designed by TECH and tailored to your objectives and professional development needs”*





## Specific Skills

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- ◆ Know the most commonly used positions for neurosurgical patients
- ◆ Perform a correct initial evaluation and classification of patients with TBI
- ◆ Know the main indications of each of the therapeutic alternatives depending on the location and shape of the aneurysm
- ◆ Understand the different treatment approaches in vascular malformations
- ◆ Know how to preserve neurological function in glial tumor surgery
- ◆ Identify the unique features of tumors in specific locations
- ◆ Understand how advances in other branches of Neurosurgery have translated to psychosurgery
- ◆ Acquire in-depth knowledge of the different craniospinal malformations that can occur in infancy
- ◆ Learn about the most frequent types of craniosynostosis
- ◆ Apply minimally invasive techniques in surgery
- ◆ Manage the tumor pathology usually treated in Neurosurgery

# 05

# Course Management

In order for its graduates to lead the medical vanguard in the area of Neurosurgery, TECH has summoned a first class teaching staff. The selected experts are skilled in the use of the most modern tools for brain surgery and have a thorough knowledge of the pre- and post-operative complications to be taken into account before undertaking this kind of healthcare process. They have also been part of the professional teams of prestigious institutions, some of them occupying positions of responsibility as top research exponents. Under your supervision, the specialist will achieve the most suitable competencies for this area of health.





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*This faculty, composed of distinguished experts, offers you an excellent study program, updated with the most recent scientific and technological considerations in the field of Neurosurgery”*

## Management



### Dr. Fernández Carballal, Carlos

- ♦ Head of the Neurosurgery Section of the Spine Area of the Hospital General Universitario Gregorio Marañón
- ♦ Specialist Area Physician at Hospital General Universitario Gregorio Marañón
- ♦ Neurosurgeon at Beata María Ana Hospital
- ♦ Neurosurgeon at Nuestra Señora del Rosario Clinic
- ♦ Neurosurgeon at Grupo Hospital Madrid centers
- ♦ PhD in Surgery, Autonomous University of Madrid
- ♦ Degree in Medicine from the University of Navarra
- ♦ Member of: SENEC, NEURORAQUIS, SENFE and REIDE

## Professors

### Dr. Casitas Hernando, Vicente

- ♦ Neurosurgeon at Ruber International Hospital
- ♦ Neurosurgeon at Hospital General Universitario Gregorio Marañón
- ♦ Resident of Neurosurgery at the Hospital General Universitario Gregorio Marañón
- ♦ Fellowship in Neuroanatomy at Athens Microneurosurgery Laboratory. Greece
- ♦ Degree in Medicine from the Complutense University of Madrid
- ♦ Professional Master's Degree in Neurological Oncology from CEU Cardenal Herrera University
- ♦ Postgraduate Diploma in Diagnostic Management of Brain Tumors by the CEU Cardenal Herrera University

### Dr. Moreno Gutiérrez, Ángela

- ♦ Specialist Physician of the Neurosurgery Service at the General Hospital
- ♦ Univeristy Hospital
- ♦ Neurologist at Centro Medico Creciendo
- ♦ Neurologist at the University Hospital La Moraleja
- ♦ Neurologist at the Milenium Medical Center Costa Rica
- ♦ Degree in Medicine and Surgery from the Autonomous University of Barcelona
- ♦ Member of the Spanish Society of Pediatric Neurosurgery, Madrid Society of Neurosurgery, Spanish Society of Pediatric Neurosurgery



**Dr. García Leal, Roberto**

- ♦ Head of Department. Department of Neurosurgery. H.G.U. Gregorio Marañón Madrid
- ♦ Master's Degree in Management and Planning of Health Care Centers and Services". Business Excellence School
- ♦ Academic Director of "Grupo CTO", an entity dedicated to Undergraduate and Postgraduate Health Education in Medicine and Nursing
- ♦ Degree in Medicine and Surgery from the Autonomous University of Madrid

**Dr. Mateo Sierra, Olga**

- ♦ Specialist in Neurosurgery at the Hospital General Universitario Gregorio Marañón
- ♦ Professor of Neurosurgery at the Complutense University of Madrid
- ♦ Researcher specialized in Brain Tumors, Neuroanatomy and Microsurgery
- ♦ Degree in Medicine and Surgery from the Autonomous University of Madrid
- ♦ Member of the Society of Neurosurgery of the Autonomous Community of Madrid

**Dr. Valera Melé, Marc**

- ♦ Neurosurgeon at the Hospital Clínico San Carlos
- ♦ Physician at the Hospital General Universitario Gregorio Marañón
- ♦ Specialist in Pediatric Neurosurgery at the Necker-Enfants Malades Hospital. Paris
- ♦ Graduate in Medicine from Hospital Clínic de Barcelona
- ♦ Professional Master's Degree in Neurological Oncology from CEU Cardenal Herrera University

**Dr. Hernández Poveda, José Manuel**

- ♦ Specialist in Pulmonology, Gregorio Marañón General University Hospital
- ♦ Co-author of several scientific articles in peer-reviewed journals
- ♦ Author of communications for Neurosurgery congresses

**Dr. Ruiz Juretschke, Fernando**

- ♦ Oncologic Neurosurgery Specialist
- ♦ Neurosurgery Specialist at Hospital Ruber Internacional
- ♦ Area Specialist in the Neurosurgery Department of the Hospital General Universitario Gregorio Marañón
- ♦ Professor of Neurosurgery, Faculty of Medicine, Universidad Complutense de Madrid
- ♦ Associate researcher in multiple national and international research projects in various fields of Neurosurgery
- ♦ Author of numerous national and international publications in the specialty
- ♦ Author of several book chapters in the specialty
- ♦ Educational internships in foreign centers: University Hospital Bonn, University Hospital Frankfurt, Mayo Clinic Rochester
- ♦ PhD in Medicine Cum Laude Mention from the Complutense University of Madrid
- ♦ Degree in Medicine from the Faculty of Medicine at the Complutense University of Madrid
- ♦ Master's Degree in Neurological Oncology
- ♦ Member of the Spanish Society of Neurosurgery, Spanish Society of Skull Base Pathology, European Association of Neurosurgical Societies

**Dr. Darriba Alles, Juan Vicente**

- ♦ Assistant Physician of the Neurosurgery Department at the Hospital General Universitario Gregorio Marañón
- ♦ Specialization in Neurosurgery at the Hospital Universitario Central de Asturias
- ♦ Degree in Medicine from the University of Oviedo
- ♦ Member of the Spanish Society of Neurosurgery

**Dr. Gil de Sagredo del Corral, Óscar Lucas**

- ♦ Medical Specialist in and Neurosurgery Neurology
- ♦ Assistant Physician of the Neurosurgery Department at the Hospital General Universitario Gregorio Marañón
- ♦ Degree in Medicine and Surgery from the Complutense University of Madrid
- ♦ Member of the Spanish Society of Neurosurgery

**Dr. García Martín, Silvia**

- ♦ Interim Resident Physician in Neurosurgery at the Hospital General Universitario Gregorio Marañón
- ♦ Internship in Intensive Care Medicine at the Viamed Santa Ángela de la Cruz Hospital
- ♦ Grado en Medicina por la Universidad de Navarra. Pamplona, Spain

**Dr. Iza Vallejo, Begoña**

- ♦ Assistant Physician of the Neurosurgery Department at the Hospital General Universitario Gregorio Marañón
- ♦ Resident tutor at the Neurosurgery Department of the Hospital General Universitario Gregorio Marañón
- ♦ Degree in Medicine from the Faculty of Medicine of the University of the Basque Country/Euskal Herriko Unibertsitatea (UPV/EHU)
- ♦ Professional Master's Degree in Neurological Oncology from the CEU Cardenal Herrera University
- ♦ Postgraduate Diploma in Diagnostic Management of Brain Tumors
- ♦ Postgraduate Diploma in Brain Tumor Neurosurgery and Radiotherapy Management
- ♦ Postgraduate Diploma in Management of Brain Metastases, Comorbidities and Complications in Cancer with Neurological Affection by CEU Cardenal Herrera University

**Dr. Garbizu Vidorreta, José Manuel**

- ♦ Neurosurgeon of the Clavel Institute at the Hospital San Francisco de Asis
- ♦ Neurosurgeon Specialist in Complex Pathology of the Spine and Functional Neurosurgery at the Hospital General Universitario Gregorio Marañón
- ♦ PhD in Neurosurgery, Autonomous University of Madrid
- ♦ Degree in Medicine from the University of Cantabria
- ♦ Rotation in Pediatric Neurosurgery at Necker-Enfants Malades Hospital. Paris, France
- ♦ Rotation in Oncologic Neurosurgery at the Centre Hospitalier Universitaire Gui de Chauliac

**Dr. Vargas López, Antonio José**

- ♦ Neurosurgeon at Hospital Universitario Torrecárdenas
- ♦ neurosurgeons at SecurCaixa Adeslas
- ♦ Neurosurgeon at Hospital Vithas Almería
- ♦ Service in the Department of Neurology at the University of Pittsburgh. United States
- ♦ Service in the Department of Neurosurgery, University of California. San Francisco, United States
- ♦ Specialist in Neurosurgery at the Hospital General Universitario Gregorio Marañón
- ♦ Teaching collaborator of the Degree in Medicine at the Complutense University of Madrid
- ♦ Degree in Medicine from the Complutense University of Madrid
- ♦ Member of: SENEK, SOANNE, Neurorraquis, SENEPE

**Dr. González Quarante, Laín Hermes**

- ◆ Neurosurgeon at the Clínica Universitaria de Navarra
- ◆ Attending Physician specializing in Neurosurgery at Grupo Hospitales Madrid
- ◆ Rotational extern in Vascular Neurosurgery at Teishinkai Hospital, Japan
- ◆ Fellow in Minimally Invasive Neurosurgery and Neuro-Oncology at the Prince of Wales Private Hospital, Sydney
- ◆ Resident physician in the Department of Pediatric Neurosurgery at Hospital 12 de Octubre
- ◆ Resident physician in the Department of Neurosurgery at Hospital General Universitario Gregorio Marañón
- ◆ Clinical Research Fellow in the Department of Neurosurgery and Neurosciences at National Taiwan University Hospital, Taipei
- ◆ Degree in Medicine and Surgery from the University of Barcelona

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*The most recent surgical innovations in the field of cerebrovascular surgery will be analyzed by you, under the academic guidance of the faculty of excellence offered by TECH”*

# 06

## Educational Plan

The syllabus of this innovative Hybrid Professional Master's Degree is composed of different academic modules that include the most recent scientific and technological results in relation to Neurosurgery. It provides theoretical learning on the most common brain disorders and neuropathies affecting the spinal cord. It also examines the latest surgical techniques and their specific recommendations and contraindications. This entire learning process is supported by innovative didactic methods such as *Relearning*, to provide the student with a fast and flexible absorption of the contents.



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*The theoretical materials of this program are accompanied by multimedia resources of great didactic value such as videos, infographics and interactive summaries, in a 100% online study platform"*

### Module 1. General Concepts in Neurosurgery. Intracranial Infectious Pathology

- 1.1. Neurosurgical Patient Positioning
- 1.2. Neuroanesthesia
- 1.3. Neurophysiological Monitoring in Neurosurgery
- 1.4. Neurosurgical Patient Intensive Care
  - 1.4.1. Anti-Seizure Prophylaxis for Neurosurgical Patients
- 1.5. Brain Localization System. Stereotaxy
- 1.6. Brain Localization System. Neuronavigation
- 1.7. Application of Robotics in Neurosurgery
- 1.8. Cost-Effectiveness in Neurosurgery
- 1.9. Postoperative Infections in Neurosurgery
- 1.10. Preventing Infection in Neurosurgical Procedures
- 1.11. Cerebral Abscesses. Diagnosis and Treatment

### Module 2. Cranioencephalic Trauma. Peripheral Nerve Pathology

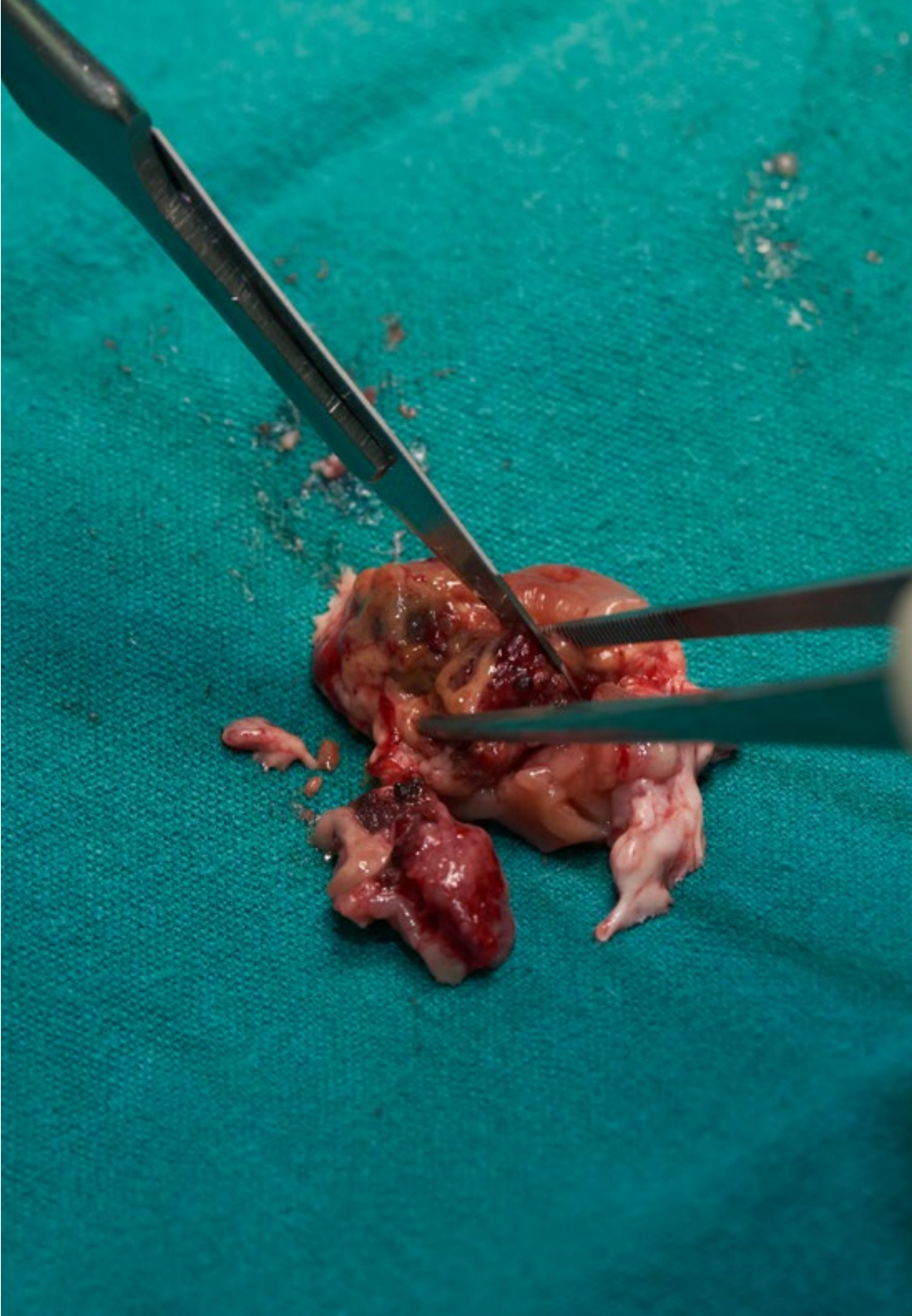
- 2.1. TBI Classification
  - 2.1.1. Mild TBI Evaluation
- 2.2. Neuromonitoring
- 2.3. Treatment of Intracranial Hypertension in Patients with TBI
- 2.4. Indications for Surgery in Cerebral Contusions and Post-Traumatic Cerebral Edema
- 2.5. Acute Epidural Hematoma
  - 2.5.1. Cranial Fractures
- 2.6. Post-Traumatic Subdural Hemorrhage
  - 2.6.1. Acute Subdural Hematoma
  - 2.6.2. Chronic Subdural Hematoma
- 2.7. TBI in Anticoagulated Patients
- 2.8. Cranioencephalic Trauma in Children
- 2.9. Peripheral Nerve Pathology. Brachial Plexus Injuries
- 2.10. Peripheral Nerve Pathology. Peripheral Nerve Entrapment Syndromes

### Module 3. Vascular Pathology I. Subarachnoid Hemorrhage and Intracranial Aneurysmal Pathology

- 3.1. Subarachnoid Hemorrhage: Clinical, Diagnostic, and Neurological Prognosis
- 3.2. Subarachnoid Hemorrhage Complications
- 3.3. Treating and Managing Patients with Subarachnoid Hemorrhage
- 3.4. Non-Aneurysmal Subarachnoid Hemorrhage
- 3.5. Anterior Circulation Aneurysms
- 3.6. Posterior Circulation Aneurysms
- 3.7. Natural History and Treatment of Unruptured Brain Aneurysm
- 3.8. Surgical Treatment of Intracranial Aneurysms
- 3.9. Endovascular Treatment of Intracranial Aneurysms
- 3.10. Mycotic and Traumatic Aneurysms

### Module 4. Vascular Pathology II. Vascular Malformations and Neurosurgical Treatment of Stroke

- 4.1. Arteriovenous Malformations: Clinical Features, Natural History, and Classification
- 4.2. Therapeutic Approaches in the Treatment of Arteriovenous Malformations
  - 4.2.1. Surgery
  - 4.2.2. Radiosurgery
  - 4.2.3. Endovascular Treatment
- 4.3. Cavernomatous Malformations
- 4.4. Venous Angiomas and Telangiectasias
- 4.5. Classification and Management of Intracranial Dural Arteriovenous Fistulas
- 4.6. Spinal Dural Arteriovenous Fistulas Classifications and Treatment
- 4.7. Carotid-Cavernous Fistulas
  - 4.7.1. Treatment Options in Carotid-Cavernous Fistulas
- 4.8. Surgical Indication for Hemorrhagic
- 4.9. Current Status of Neurosurgical Treatment in Ischemic Stroke
  - 4.9.1. Indications for Decompressive Craniectomy in Ischemic Stroke



## Module 5. Tumor Pathology

- 5.1. Histological and Molecular Classification of Gliomas
- 5.2. Low-Grade Gliomas
- 5.3. High-Grade Gliomas
- 5.4. Therapeutic Algorithm in the Treatment of Gliomas
- 5.5. Advances in the Surgical Treatment of Gliomas
  - 5.5.1. Fluorescence-Guided Surgery
  - 5.5.2. Surgery in Eloquent Areas
- 5.6. The Role of Radiotherapy in the Treatment of Gliomas
- 5.7. Advances in Chemotherapy Treatment of Gliomas
- 5.8. Ependymal Tumors
- 5.9. Neuronal Tumors

## Module 6. Tumor Pathology II

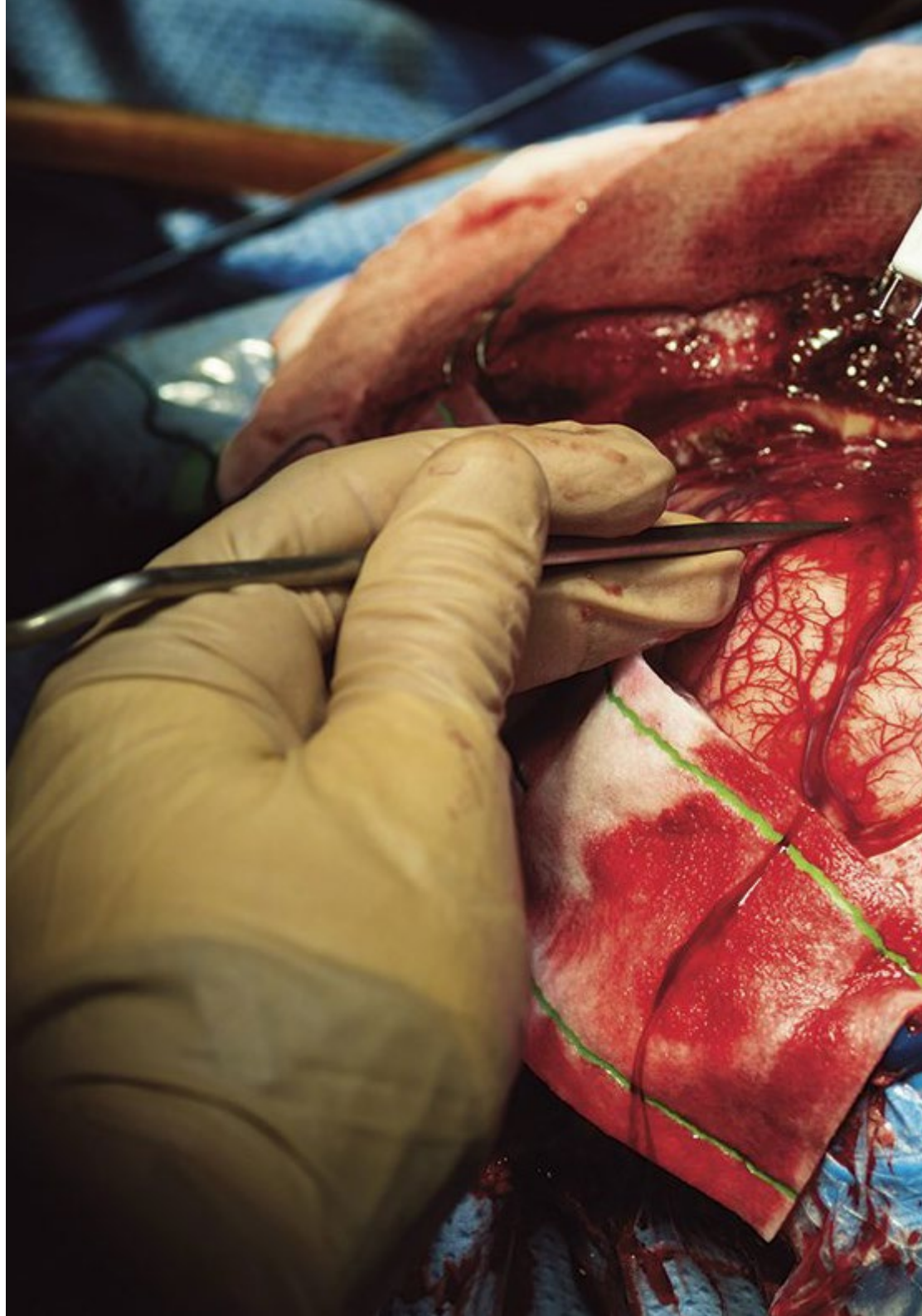
- 6.1. Cerebral Metastases
  - 6.1.1. Surgical Treatment Indications
  - 6.1.2. The Role of Radiotherapy in the Treatment of Cerebral Metastases
- 6.2. Cerebral Meningiomas. Classification and Treatment
- 6.3. Acoustic Neuroma and Other Pontocerebellar Angle Tumors
- 6.4. Posterior Fossa Tumors in Adults
  - 6.4.1. Hemangioblastoma
  - 6.4.2. Medulloblastoma in Adults
- 6.5. Pituitary Adenomas
  - 6.5.1. Indication of Medical and Surgical Treatment
- 6.6. Craniopharyngiomas and Sellar and Suprasellar Tumors
- 6.7. Endoscopic Approaches to the Base of the Skull
- 6.8. Intraventricular Tumors
  - 6.8.1. Surgical Approaches to Intraventricular Tumors
- 6.9. Pineal Region Tumors: Diagnosis and Treatment Strategy
- 6.10. CNS Lymphoma

## Module 7. Functional Neurosurgery

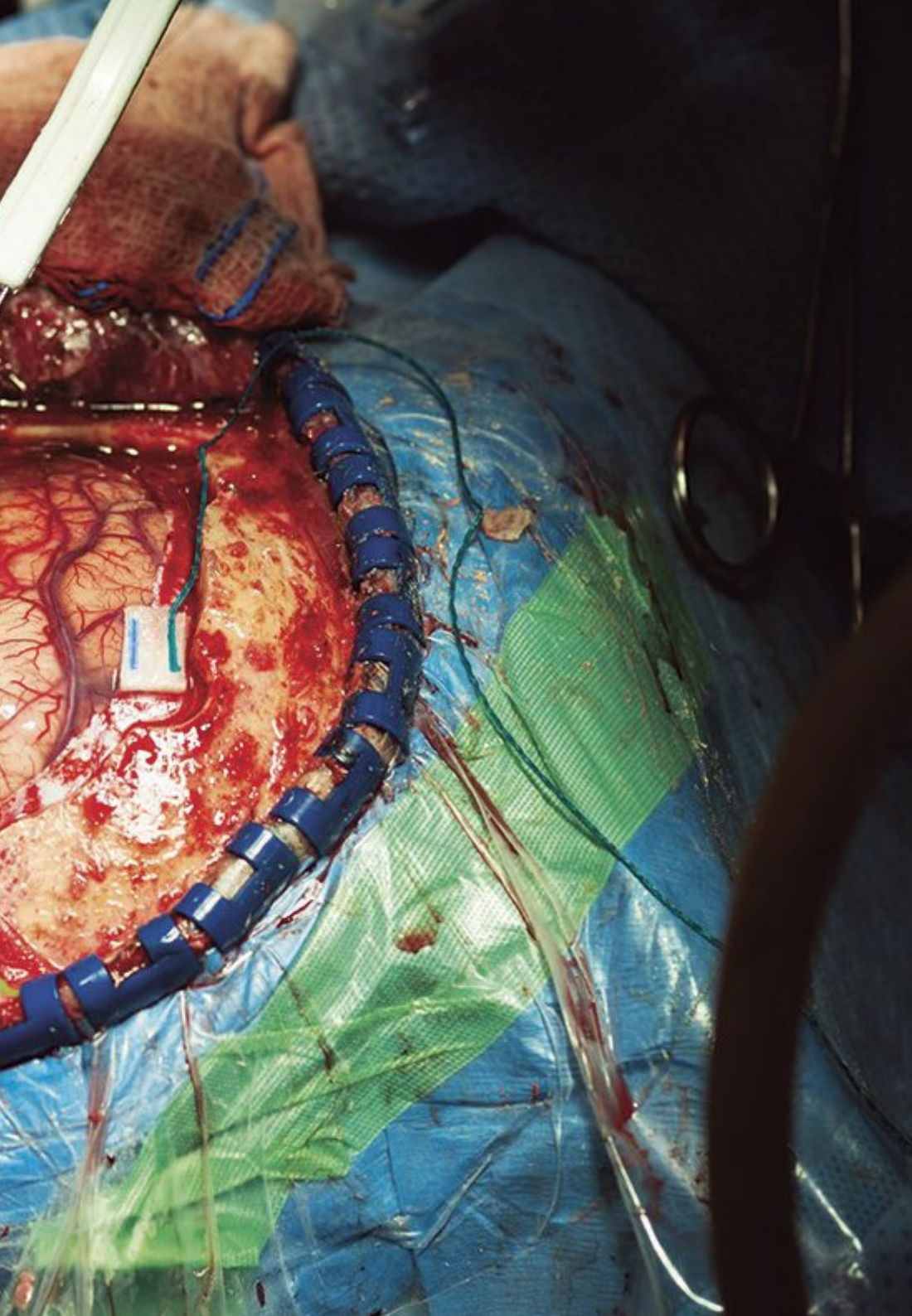
- 7.1. Surgical Indications in Epileptic Patients
  - 7.1.1. Pre-Surgery Evaluation
- 7.2. Surgical Treatments in Epilepsy Surgery
  - 7.2.1. Resective Treatments
  - 7.2.2. Palliative Treatment
- 7.3. Temporal Epilepsy: Surgical Treatment and Prognosis
- 7.4. Extratemporal Epilepsy: Surgical Treatment and Prognosis
- 7.5. Indication for Movement Disorder Surgery
- 7.6. Deep Brain Stimulation
  - 7.6.1. Surgical Technique
- 7.7. Historical Progression of Injury in Movement Disorder Surgery
  - 7.7.1. Ultrasound Lesion Application
- 7.8. Psychosurgery. Indications for Surgical Treatment in Psychiatric Patients
- 7.9. Neurosurgical Procedures in the Treatment of Pain and Spasticity
- 7.10. Trigeminal Neuralgia
  - 7.10.1. Percutaneous Techniques
  - 7.10.2. Microvascular Decompression

## Module 8. Pediatric Neurosurgery and CSF Pathology

- 8.1. Congenital Brain Malformations
  - 8.1.1. Chiari Malformation
- 8.2. Open Spina Bifida. Myelomeningocele
- 8.3. Closed Spinal Dysraphisms
- 8.4. Simple Craniosynostosis
  - 8.4.1. Positional Skull Deformity
- 8.5. Syndromic Craniosynostosis
- 8.6. Vascular Pathology in Children
- 8.7. Supratentorial Tumors in Pediatric Patients
- 8.8. Infratentorial Tumors in Pediatric Patients
- 8.9. Hydrocephalus. Diagnosis and Classification
  - 8.9.1. Posthemorrhagic Hydrocephalus of Prematurity
  - 8.9.2. Chronic Adult Hydrocephalus
- 8.10. Hydrocephalus Treatment







## Module 9. Spinal Pathology. Degenerative Spine Conditions

- 9.1. Lumbar Degenerative Disc Disease
- 9.2. Surgical Indication in Lumbar Disc Herniation and Lumbar Spinal Stenosis
- 9.3. Classification and Treatment of Lumbar Spondylolisthesis
- 9.4. Indications for Lumbar Fusion in Lumbar Degenerative Pathology
- 9.5. Lumbar Fusion Surgical Techniques
- 9.6. Principles of Sagittal Balance and Application to Spine Surgery
- 9.7. Application of Minimally Invasive Surgery in Lumbar Pathology
- 9.8. Herniated Cervical Disc. Surgical Techniques.
- 9.9. Cervical Canal Stenosis and Cervical Myelopathy
  - 9.9.1. Criteria for Choosing the Surgical Approach
- 9.10. Herniated Thoracic Disc
  - 9.10.1. Surgical Techniques in the Treatment of Herniated Thoracic Disc

## Module 10. Spinal Pathology. Tumor, Fracture, and Infection

- 10.1. Evaluation of Patients with Post-Traumatic Spinal Cord Injury
- 10.2. Treatment of Patients with Post-Traumatic Spinal Cord Injury
- 10.3. Atlas and Axis Fractures
- 10.4. Classifications and therapeutic indications for subaxial cervical fractures
- 10.5. Classifications and Surgical Indications for Dorso-Lumbar Fractures
- 10.6. Primary Spinal Tumors
- 10.7. Metastatic Spinal Tumors
- 10.8. Extramedullary Intradural Spinal Tumors
- 10.9. Intramedullary Spinal Tumors
- 10.10. Infectious Spondylodiscitis
  - 10.10.1. Surgical Treatment Indications
  - 10.10.2. Postoperative Discitis

07

# Clinical Internship

The clinical practices of this Hybrid Professional Master's Degree provide the specialist with a unique learning experience focused on the theoretical and practical mastery of a complex medical specialty such as Neurosurgery. As with the first academic phase of this Certificate, the physician will have personalized counseling at all times. At the end of this second educational moment, you will be able to incorporate the latest procedures in this complex health field into your professional practice.





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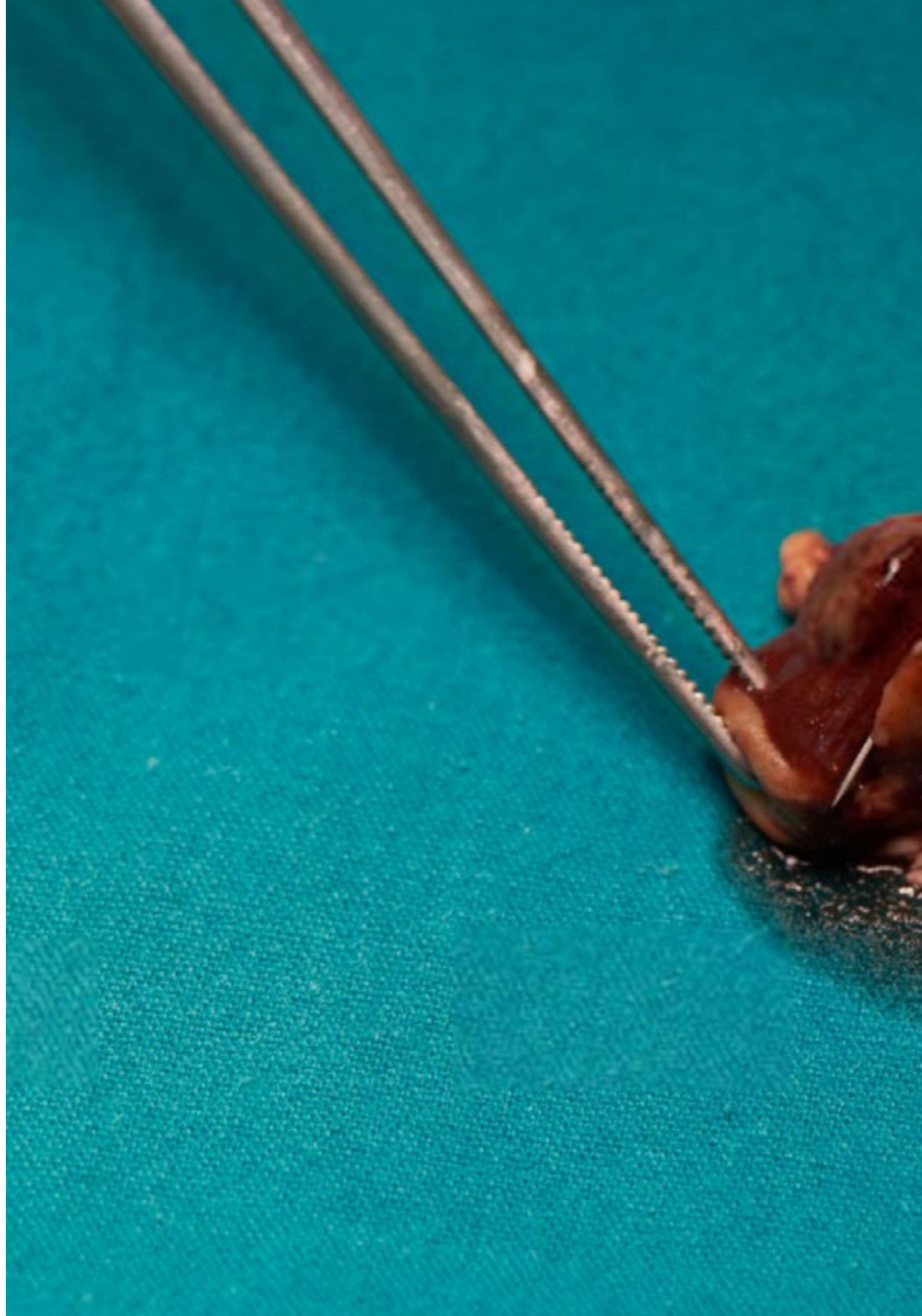
*Enroll in this Hybrid Professional Master's Degree and you will incorporate the use of innovative surgical techniques into your professional practice"*

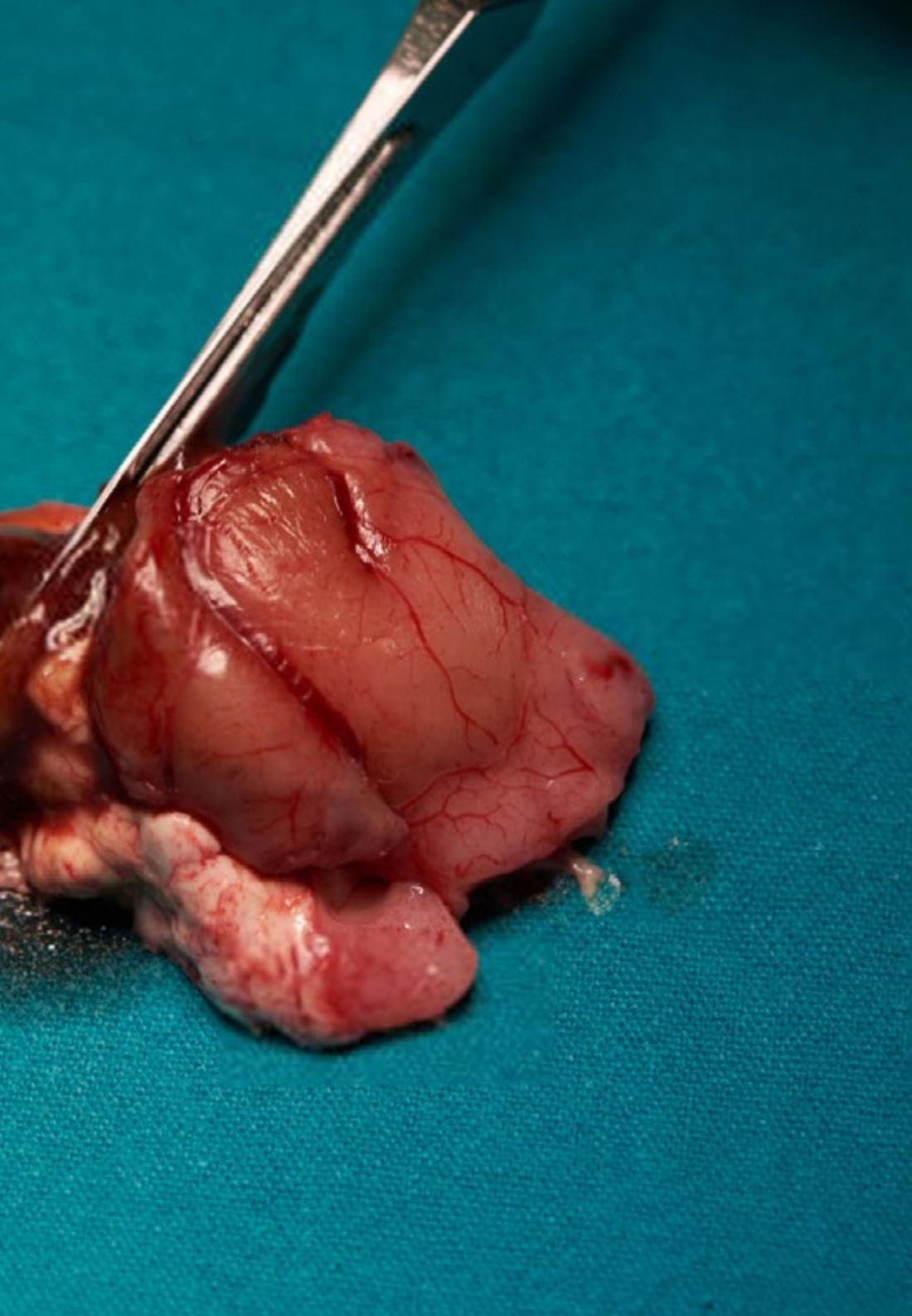
At the conclusion of the first phase of this Hybrid Professional Master's Degree, the physician has access to a rigorous clinical practice, dedicated to the consolidation of surgical knowledge and skills. This second educational moment consists of an on-site and immersive internship in a first-rate healthcare institution, where you will have access to the most up-to-date technologies and protocols. At the same time, you will have the advice of leading experts in the field and an assistant tutor, who will supervise and enhance your academic progress.

This training, where care is provided to real patients, will take place from 8-hour days, Monday through Friday, to complete 3 weeks of duration. Another important advantage offered by this program, with respect to others of its kind in the educational market, is that the surgeon will be able to choose the hospital facility of his preference and depending on his geographic location. TECH has selected only the best centers, so each student will have total guarantees of learning in all of them.

The practical part will be performed 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 the praxis of Neurosurgery (learning to be and learning to relate).

The procedures described below will form the basis of the practical part of the training, 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:





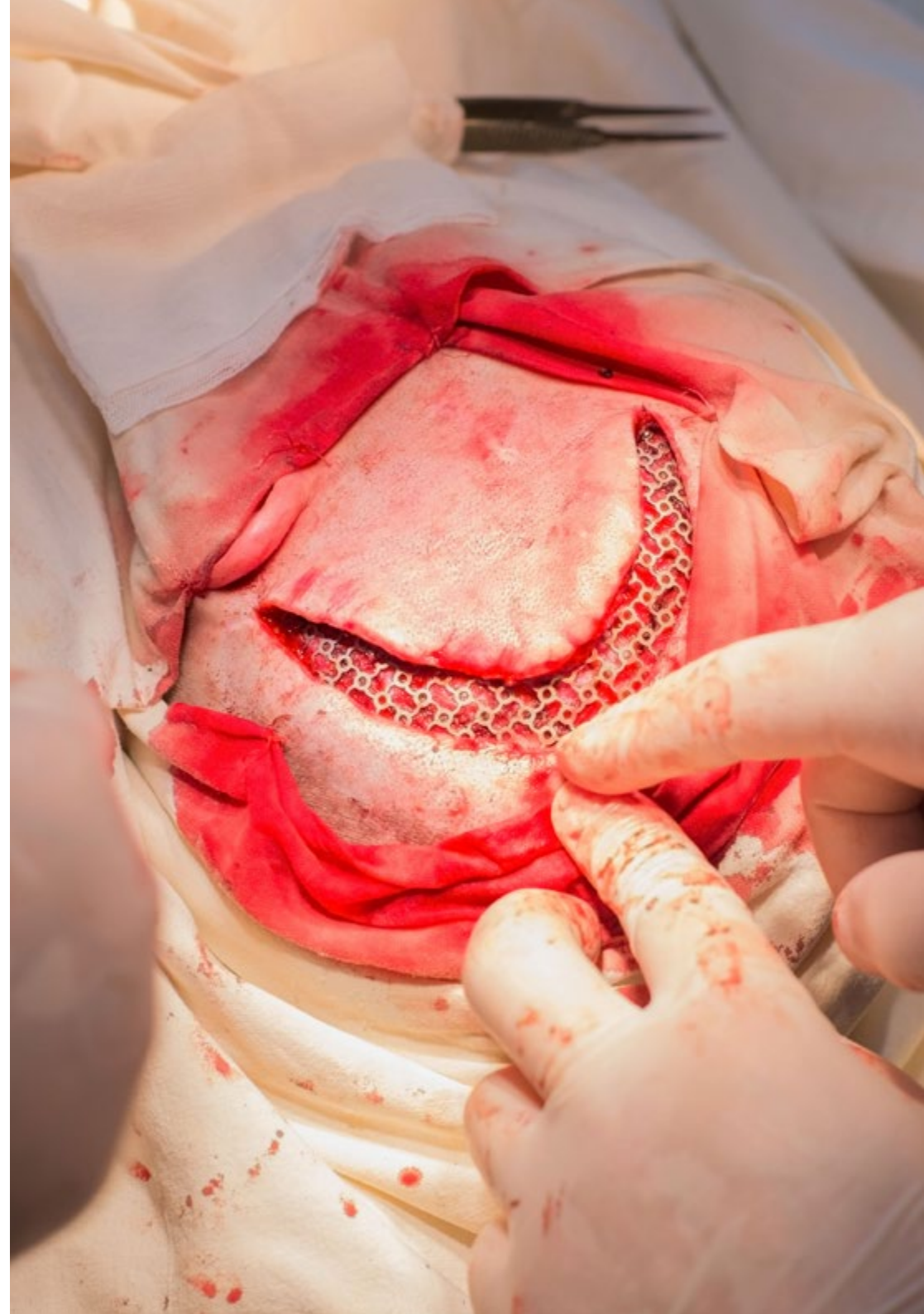
Module	Practical Activity
<b>Interventional and non-invasive diagnostic neurosurgical procedures and non-invasive</b>	Apply Cerebral Arteriography for the diagnosis of cerebrovascular pathology
	To determine the functionality of the intracranial vessels by means of the Wada test
	Assessing the electrical impulses of the brain by means of Electroencephalography, Electromyography and Electroneurography
	Indicate high-resolution MRI to assess the state of the brain tissue
	Perform PET and SPECT to evaluate neuronal diseases
<b>Minimally invasive neurosurgical techniques</b>	Implement Intracranial Endoscopic Neurosurgery to treat ailments such as Aneurysms, Ankylosing Spondylitis, Arteriovenous and Cavernous malformations, Carotid Occlusive disease, difficult to access tumors, among others
	Develop endonasal neurosurgery for the management of diseases such as pituitary-pituitary adenomas, meningiomas and chordomas
	Address dorsal and lumbar hernias, chronic pain and compression fractures, among others, by means of Endoscopic Spinal Surgery
	To perform percutaneous lumbar arthrodesis for the treatment of degenerative of degenerative diseases
<b>Cerebrovascular surgical treatments</b>	Perform endovascular therapy for intracranial vessel lesion occlusion against malformations and arterio-venous fistulas
	Treating cerebral ischemia by Thrombolysis
	Using intracerebral angioplasty to improve blood flow to the brain
	Pre-surgical embolization of different brain tumors
	Implanting pumps for spinal infusion of drugs
<b>More advanced surgical techniques for the treatment of Epilepsy</b>	Perform temporal lobe resective surgery in the most severe cases of epilepsy
	Destroy a small portion of damaged brain tissue using interstitial thermal laser therapy
	Intracranial and permanent placement of deep brain stimulation devices deep brain stimulation
	To remove all or part of the brain that connects the nerves in the right and left hemispheres of the brain through Callosotomy
	To evaluate the use of hemispherectomy and functional hemispherectomy in children with latent evidence of seizures
<b>Trends of Oncological Neurosurgery</b>	Undertake craniotomy biopsies, directed by neuronavigation
	Perform Radiosurgery procedures, introducing radiation equipment to specific parts of the brain during the surgical procedure
	Dissecting and removing brain and spinal tumors through ultrasound aspiration procedures

## 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 agreement for the program are as follows:

**1. TUTORING:** during the Hybrid Professional Master's Degree students will be assigned two tutors who will accompany them throughout the process, resolving any doubts and questions that may arise. On 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 of practical training, distributed in 8-hour days and five 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:** in case of no-show on the day of the beginning of the Hybrid Professional Master's Degree, the student will lose the right to the same 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 the internship. Any problems that may arise during the course of the internship must be urgently reported to the academic tutor.

**4. CERTIFICATION:** the student who completes the Hybrid Professional Master's Degree will receive a certificate accrediting the stay at the center in question

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

**6. PREVIOUS STUDIES:** some centers may require a certificate of previous studies 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. NOT INCLUDED:** the Hybrid Professional Master's Degree will not include any element not described in these 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?

Completion of this Hybrid Professional Master's Degree in Neurosurgery involves an intensive, on-site professional practice in a hospital of the highest level of care. Physicians will have the opportunity to choose among several facilities dedicated to that specialty, taking into account the one that best suits their educational interests and geographic location. Once there, you will have access to the most complete technology in the industry and will be able to apply your skills on real patients, under the supervision of a prestigious team of experts.







“

*Completing this program, based on its clinical practices, will help you consolidate essential knowledge for the most up-to-date professional work"*



Students can take the practical part of this Hybrid Professional Master's Degree at the following centers:



Medicine

### Hospital HM Modelo

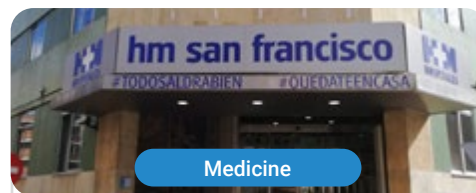
Country	City
Spain	La Coruña

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

Network of private clinics, hospitals and specialized centers distributed all over the Spanish geography.

**Related internship programs:**

- Anaesthesiology and Resuscitation
- Spine Surgery



Medicine

### Hospital HM San Francisco

Country	City
Spain	León

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

Network of private clinics, hospitals and specialized centers distributed all over the Spanish geography.

**Related internship programs:**

- Update in Anesthesiology and Resuscitation
- Nursing in the Traumatology Service



Medicine

### Hospital HM Regla

Country	City
Spain	León

Address: Calle Cardenal Landázuri, 2, 24003, León

Network of private clinics, hospitals and specialized centers distributed all over the Spanish geography.

**Related internship programs:**

- Psychiatric Treatments Update in Minor Patients



Medicine

### Hospital HM Nou Delfos

Country	City
Spain	Barcelona

Address: Avinguda de Vallcarca, 151, 08023, Barcelona

Network of private clinics, hospitals and specialized centers distributed all over the Spanish geography.

**Related internship programs:**

- Aesthetic Medicine
- Clinical Nutrition in Medicine



Medicine

### Hospital HM Madrid

Country	City
Spain	Madrid

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

Network of private clinics, hospitals and specialized centers distributed all over the Spanish geography.

**Related internship programs:**

- Clinical Analysis
- Anaesthesiology and Resuscitation



Medicine

### Hospital HM Montepíncipe

Country	City
Spain	Madrid

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

Network of private clinics, hospitals and specialized centers distributed all over the Spanish geography.

**Related internship programs:**

- Child Orthopedics
- Aesthetic Medicine



Medicine

### Hospital HM Torrelodones

Country	City
Spain	Madrid

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

Network of private clinics, hospitals and specialized centers distributed all over the Spanish geography.

**Related internship programs:**

- Anaesthesiology and Resuscitation
- Hospital Pediatrics



Medicine

### Hospital HM Sanchinarro

Country	City
Spain	Madrid

Address: Calle de Oña, 10, 28050, Madrid

Network of private clinics, hospitals and specialized centers distributed all over the Spanish geography.

**Related internship programs:**

- Anaesthesiology and Resuscitation
- Sleep Medicine



Medicine

### Hospital HM Puerta del Sur

Country City  
Spain Madrid

Address: Av. Carlos V, 70, 28938, Móstoles, Madrid

Network of private clinics, hospitals and specialized centers distributed all over the Spanish geography.

**Related internship programs:**

- Pediatric Emergencies
- Clinical Ophthalmology



Medicine

### HM CINAC - Centro Integral de Neurociencias

Country City  
Spain Madrid

Address: Avenida Carlos V, 70, 28938, Móstoles, Madrid

Network of private clinics, hospitals and specialized centers distributed all over the Spanish geography.

**Related internship programs:**

- Nursing in the Neurology Service
- Update in Neurology



Medicine

### HM CINAC Barcelona

Country City  
Spain Barcelona

Address: Avenida de Vallcarca, 151, 08023, Barcelona

Network of private clinics, hospitals and specialized centers distributed all over the Spanish geography.

**Related internship programs:**

- Neurodegenerative Diseases
- Nursing in the Neurology Service



Medicine

### Policlínico HM Imi Toledo

Country City  
Spain Toledo

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

Network of private clinics, hospitals and specialized centers distributed all over the Spanish geography.

**Related internship programs:**

- Electrotherapy in Rehabilitation Medicine
- Hair Transplantation

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 Hybrid Professional Master's Degree in Neurosurgery guarantees students, in addition to the most rigorous and up-to-date education, access to a Professional Master's Degree issued by TECH Global University.



“

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

This program will allow you to obtain your **Hybrid Professional Master's Degree certificate in Neurosurgery** 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 Neurosurgery**

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

Duration: **12 months**

Certificate: **TECH Global University**

Recognition: **60 + 5 ECTS Credits**



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

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



## Hybrid Professional Master's Degree

Neurosurgery

Modality: Hybrid (Online + Clinical Internship)

Duration: 12 months

Certificate: TECH Global University

60 + 5 créditos ECTS

# Hybrid Professional Master's Degree

## Neurosurgery

