

# Postgraduate Diploma Spinal Pathology and Pediatric Neurosurgery





## Postgraduate Diploma Spinal Pathology and Pediatric Neurosurgery

Course Modality: Online

Duration: 6 months.

Certificate: TECH Technological University

18 ECTS Credits

Teaching Hours: 450 hours.

Website: [www.techitute.com/medicine/postgraduate-diploma/postgraduate-diploma-spinal-pathology-pediatric-neurosurgery](http://www.techitute.com/medicine/postgraduate-diploma/postgraduate-diploma-spinal-pathology-pediatric-neurosurgery)

# Index

01

Introduction

---

*p. 4*

02

Objectives

---

*p. 8*

03

Course Management

---

*p. 12*

04

Structure and Content

---

*p. 16*

05

Methodology

---

*p. 20*

06

Certificate

---

*p. 28*

# 01

# Introduction

This highly scientifically rigorous specialization explores the precise indications for lumbar fusion in degenerative spine pathology and new lumbar fusion techniques as an alternative to the classic posterior approaches. Likewise, with this program the student will learn how to evaluate the patient with post-traumatic spinal cord injury and will address the different craniospinal malformations that may occur in children, among other issues of interest that will be considered throughout these months of specialization.





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*Do not hesitate to take this specialization with us.  
You will find the best teaching material with virtual  
lessons”*

The expansion of knowledge in neurosciences in the last decades, together with technological innovations that have resulted in important diagnostic and therapeutic advances, have transformed Neurosurgery into a specialty with multiple superspecializations with the aim of improving the quality of care of neurosurgical patients.

This Postgraduate Diploma is an updated compilation of Spine and Spinal Pathology and Child Neurosurgery. The application of diagnostic and therapeutic algorithms enhances student learning and synthesizes the flow of information to facilitate its practical application in the student's environment.

On the other hand, the multimedia content developed with the latest interactive educational technology . enhances the adoption of problem-solving strategies by students. This way, the student will acquire the necessary skills to approach the diagnosis and treatment of neurosurgical pathologies.

For this reason, this Postgraduate Diploma is the most intensive and effective educational program on the market in this field. A high level of training that will allow you to become one of the most up-to-date professionals in the sector, in a field with a high demand for professionals.

The **Postgraduate Diploma in Spinal Pathology and Pediatric Neurosurgery** contains the scientific most complete and up-to-date educational program on the market. The most important features include:

- ◆ Practical cases presented by experts in Neurosurgery
- ◆ The graphic, schematic, and eminently practical contents with which they are created provide scientific and practical information on the essential disciplines for professional practice.
- ◆ The latest developments in Neurosurgery
- ◆ Practical exercises where the self-assessment process can be carried out to improve learning
- ◆ Special emphasis on innovative methodologies in neurosurgery
- ◆ Theoretical lessons, questions to the expert, debate forums on controversial topics, and individual reflection work.
- ◆ Content that is Accessible from any Fixed or Portable device with an Internet Connection



*Expand your knowledge through this Postgraduate Diploma that will allow you to train you with a view to achieving excellence in this field"*

“ *This Postgraduate Diploma is the best investment you can make when selecting a refresher program for two reasons: in addition to updating your knowledge of Neurosurgery, you will obtain a qualification endorsed by TECH Technological University*”

The teaching staff includes professionals from the Neurosurgery sector, who bring their experience to this specialization program, as well as renowned specialists from leading societies and prestigious universities.

The multimedia content, developed with the latest educational technology, will provide the physician with situated and contextual learning, i.e., a simulated environment that will provide immersive specialization that is programmed to train students in real situations.

The design of this Program focuses on Problem-Based Learning, by means of which the professional will have to try to solve the different situations of Professional Practice, which will be posed throughout the Program. For this purpose, the neurosurgeon will be assisted by an innovative interactive video system developed by renowned and experienced experts in the field of Spine and Spinal Pathology and Child Neurosurgery.

*The current importance of Neurosurgery makes this Postgraduate Diploma an essential training for professionals in the sector.*

*A comprehensive program that will help you keep up to date with the latest techniques in Neurosurgery.*



# 02 Objectives

The Postgraduate Diploma in Spine and Spinal Pathology and Pediatric Neurosurgery is aimed at aiding the professional's performance with the latest advances and most innovative treatments in the sector.



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*Thanks to this Postgraduate Diploma you will be able to train in Neurosurgery and learn about the latest advances in the field”*



## General Objectives

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- ◆ Acquire more in-depth knowledge of the speciality, with a practical approach to help professionals apply the information learned in their clinical practice, focusing on the latest diagnostic and therapeutic guidelines and the most recent scientific evidence.
- ◆ Learn the latest surgical techniques that have been implemented in recent years along with the knowledge of technological development in multiple areas of Neurosurgery



*Take the opportunity and take the step to get up-to-date on the latest developments in Spinal Pathology and Pediatric Neurosurgery”*





## Specific Objectives

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- ◆ 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 generative 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
- ◆ 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
- ◆ 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

03

# Course Management

The program's teaching staff includes leading experts in Neurosurgery, who contribute their vast work experience to this specialization program. Additionally, other recognized experts participate in its design and preparation, completing the program in an interdisciplinary manner.



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*Leading experts in Neurosurgery have joined forces to share all their knowledge in the field with you”*

## Management



### Dr. Fernández Carballal, Carlos

- ♦ Head of the Spinal Pathology Section. Neurosurgery Service
- ♦ Gregorio Marañón General University Hospital
- ♦ Associate Neurosurgery Professor. Faculty of Medicine. Complutense University of Madrid
- ♦ PhD in Surgery from the Autonomous University of Madrid Faculty of Medicine, obtaining the qualification of outstanding cum laude.
- ♦ Member of the Spanish Society of Neurosurgery, Member of the Neurorachis Society, Member of the Spanish Society of Functional Neurosurgery (SENEF)
- ♦ Master's Degree in Medical and Clinical Management from the Spanish Distance University (UNED).
- ♦ Degree in Medicine (University of Navarra, 1999)

## Professors

### Dr. Manuel Poveda, José

- ♦ Neurosurgery Department. Gregorio Marañón General University Hospital
- ♦ Degree in Medicine. Central University of Venezuela

### Mrs. García Hernando, Silvia

- ♦ Neurosurgery Department. Gregorio Marañón General University Hospital
- ♦ Degree in Medicine. Navarra University, Pamplona

### Mrs. Moreno Gutiérrez, Ángela

- ♦ Neurosurgery Department at the Gregorio Marañón General University Hospital.
- ♦ Degree in Medicine and Surgery from the Autonomous University of Barcelona
- ♦ Member of the Spanish Society of Pediatric Neurosurgery

### Dr. Gil de Sagredo del Corral, Oscar Lucas

- ♦ Neurosurgery Department. Gregorio Marañón General University Hospital
- ♦ Degree in Medicine and Surgery. Complutense University of Madrid
- ♦ Member of the Spanish Society of Neurosurgery (SENEC)

### Dr. Garbizu Vidorreta, José Manuel

- ♦ Neurosurgery Department. Gregorio Marañón General University Hospital
- ♦ Degree in Medicine from the Faculty of Medicine at the University of Cantabria.



# 04

# Structure and Content

The structure of the content has been designed by the best professionals in the Neurosurgery sector, with extensive experience and recognized prestige in the profession, backed by the volume of cases reviewed, studied, and diagnosed, and with extensive knowledge of new technologies applied to teaching.



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*The Postgraduate Diploma in Spinal Pathology and Pediatric Neurosurgery contains the scientific most complete and up-to-date scientific program on the market”*

## Module 1. Spinal Pathology. Degenerative Spine Conditions

- 1.1. Lumbar Degenerative Disc Disease
- 1.2. Surgical Indication in Lumbar Disc Herniation and Lumbar Spinal Stenosis
- 1.3. Classification and Treatment of Lumbar Spondylolisthesis
- 1.4. Indications for Lumbar Fusion in Lumbar Degenerative Pathology
- 1.5. Lumbar Fusion Surgical Techniques
- 1.6. Principles of Sagittal Balance and Application to Spine Surgery
- 1.7. Application of Minimally Invasive Surgery in Lumbar Pathology
- 1.8. Herniated Cervical Disc. Surgical Techniques.
- 1.9. Cervical Canal Stenosis and Cervical Myelopathy
  - 1.9.1. Criteria for Choosing the Surgical Approach
- 1.10. Herniated Thoracic Disc
  - 1.10.1. Surgical Techniques in the Treatment of Herniated Thoracic Disc

## Module 2. Spinal Pathology. Tumor, Fracture, and Infection

- 2.1. Evaluation of Patients with Post-Traumatic Spinal Cord Injury
- 2.2. Treatment of Patients with Post-Traumatic Spinal Cord Injury
- 2.3. Atlas and Axis Fractures
- 2.4. Classifications and Treatment Indications for Subaxial Cervical Fractures
- 2.5. Classifications and Surgical Indications for Dorso-Lumbar Fractures
- 2.6. Primary Spinal Tumors
- 2.7. Metastatic Spinal Tumors
- 2.8. Extramedullary Intradural Spinal Tumors
- 2.9. Intramedullary Tumors
- 2.10. Infectious Spondylodiscitis
  - 2.10.1. Surgical Treatment Indications
  - 2.10.2. Postoperative Discitis



### Module 3. Pediatric Neurosurgery and CSF Pathology

- 3.1. Congenital Brain Malformations
  - 3.1.1. Chiari Malformation
- 3.2. Open Spina Bifida. Myelomeningocele
- 3.3. Closed Spinal Dysraphisms
- 3.4. Simple Craniosynostosis
  - 3.4.1. Positional Skull Deformity
- 3.5. Syndromic Craniosynostosis
- 3.6. Vascular Pathology in Children
- 3.7. Supratentorial Tumors in Pediatric Patients
- 3.8. Infratentorial Tumors in Pediatric Patients
- 3.9. Hydrocephalus. Diagnosis and Classification
  - 3.9.1. Posthemorrhagic Hydrocephalus of Prematurity
  - 3.9.2. Chronic Adult Hydrocephalus
- 3.10. Hydrocephalus Treatment



*This will provide key specialization to advance your career"*

05

# Methodology

This training program provides you with a different way of learning. Our methodology uses a cyclical learning approach: ***Re-learning***.

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***.



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*Discover Re-learning, 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 abundant 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. Gervas, 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.

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

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

1. 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.



## Re-Learning Methodology

At TECH we enhance the Harvard case method with the best 100% online teaching methodology available: Re-learning.

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 Re-learning method has managed to improve the overall satisfaction levels of professionals who complete their studies, with respect to the quality indicators of the best Spanish-speaking 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 high socioeconomic profile and an average age of 43.5 years old.

*Re-learning 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 multimedia content presentation training Exclusive system 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 & Re-testing

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 your goals.



#### Classes

There is scientific evidence on the usefulness of learning by observing experts: The system termed Learning from an Expert strengthens knowledge and recall capacity, and generates confidence in the face of difficult decisions in the future.



#### 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.



# 06 Certificate

The **Postgraduate Diploma in Spinal Pathology and Pediatric Neurosurgery** guarantees, in addition to the most rigorous and up-to-date specialization, access to a Postgraduate Diploma qualification issued by **TECH Technological University**.



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*Successfully complete this training program and receive your university certificate without travel or laborious paperwork"*

This **Postgraduate Diploma in Spinal Pathology and Pediatric Neurosurgery** contains the most scientific and up-to-date educational program on the market.

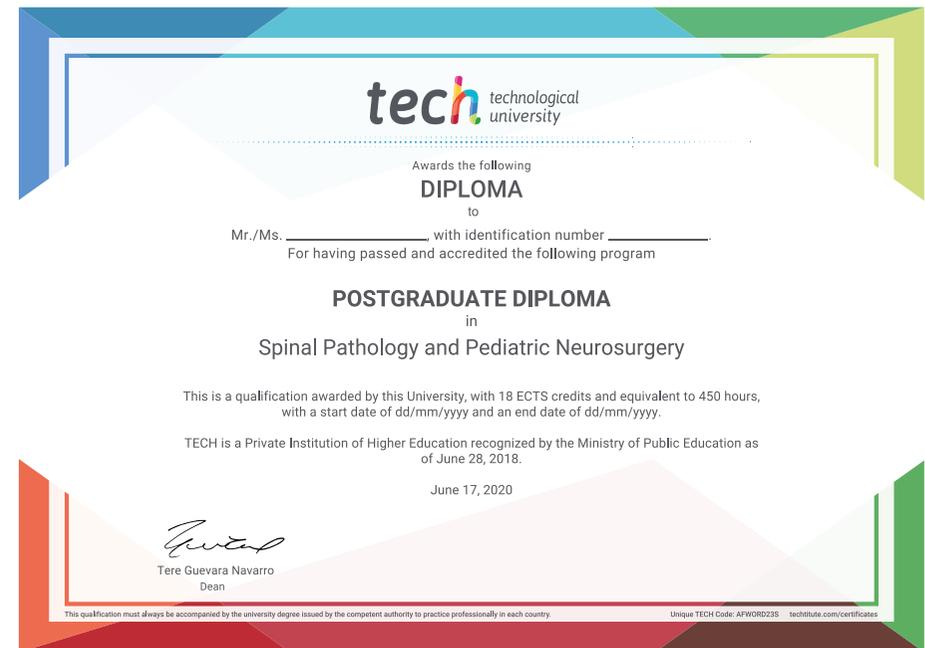
After the student has passed the evaluations, they will receive by mail \* with acknowledgement of receipt their corresponding Postgraduate Diploma issued by **TECH Technological University**.

This diploma contributes to the academic development of the professional and adds a high university curricular value to their training. It is 100% valid in all competitive examinations, labour exchanges and professional career evaluation committees.

Title: **Postgraduate Diploma in Spinal Pathology and Pediatric Neurosurgery**

ECTS: **18**

Official N° of Hours: **450 hours**.



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

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



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Pediatric Neurosurgery

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Certificate: TECH Technological University

18 ECTS Credits

Teaching Hours: 450 hours.

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