

# Hybrid Professional Master's Degree

Pediatric Neurology  
and Neurodevelopment



## Hybrid Professional Master's Degree

### Pediatric Neurology and Neurodevelopment

Course Modality: Hybrid (Online + Clinical Internship)

Duration: 12 months

Certificate: TECH Technological University

Teaching Hours: 1,620 h.

Website: [www.techtitute.com/pk/medicine/hybrid-professional-master-degree/hybrid-professional-master-degree-pediatric-neurology-neurodevelopment](http://www.techtitute.com/pk/medicine/hybrid-professional-master-degree/hybrid-professional-master-degree-pediatric-neurology-neurodevelopment)

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# 01

# Introduction

In the last decades, Pediatric Neurology has evolved considerably and thanks to it, highly complex procedures are now implemented, as well as technological devices of enormous diagnostic and therapeutic value. However, it is not easy to master all its particularities and to keep up to date on its applications. Taking this context into account, TECH offers an innovative academic modality composed of two different stages. In the first stage, the specialist will analyze theoretically and 100% online all the novelties of the medical discipline in question. Afterward, they will complete a 3-week clinical internship in a prestigious hospital institution, where they will apply the knowledge acquired and develop cutting-edge competencies.



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*With the help of this program you will be updated on the most recent discoveries in the etiology and symptomatology of neurological disorders that occur in children"*

In recent years, medical sciences have paid increased attention to neurodevelopmental disorders. From numerous studies and clinical trials related to this area of Pediatric Neurology, much more complex and efficient diagnostic procedures, therapeutic strategies and rehabilitation devices have emerged. On the other hand, in the surgical field, new methods have emerged that enable a more accurate solution for pathologies such as Epilepsy or Hydrocephalus. These examples, in addition to demonstrating the evolution of this health sector, are proof of the need for increasingly prepared professionals, capable of taking on the challenges of applying all these new developments.

For this reason, TECH has designed this qualification that integrates, like no other in the educational market, the most up-to-date practical and theoretical contents regarding Pediatric Neurology. Therefore, the program has, first of all, a didactic phase with a comprehensive syllabus to which specialists will have access from a 100% online and interactive platform. The learning materials will be available at any time and place, with the simple help of a device connected to the Internet. In addition, for its total assimilation, the syllabus has the personalized guidance of a faculty of excellence and innovative study methodologies such as Relearning.

Then, in the second academic phase, the neuropsychiatrist will be received in a hospital facility of the highest level and rigor. There, they will put into practice all the procedures analyzed during the theoretical phase of this Hybrid Professional Master's Degree. To complete all the activities of this intensive and immersive face-to-face stay, the professional will have the support of an assistant tutor who will strive to promote their academic progress. Also, they will work closely with great experts in this medical discipline. This entire educational phase has an extension of 120 hours, which will be developed in days from Monday to Friday, for a total of 3 weeks. At the end of both educational periods, the physician will have the latest competencies to update his professional practice.

This **Hybrid Professional Master's Degree in Pediatric Neurology and Neurodevelopment** 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 Pediatric Neurology professionals
- ♦ 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 pediatric patients with signs of neurological disorders caused by inflammatory, infectious or autoimmune diseases
- ♦ Presentation of practical workshops on procedures diagnosis, and treatment techniques
- ♦ An algorithm-based interactive learning system for decision-making in the clinical situations presented throughout the course
- ♦ Practical clinical guides on approaching different pathologies
- ♦ All 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

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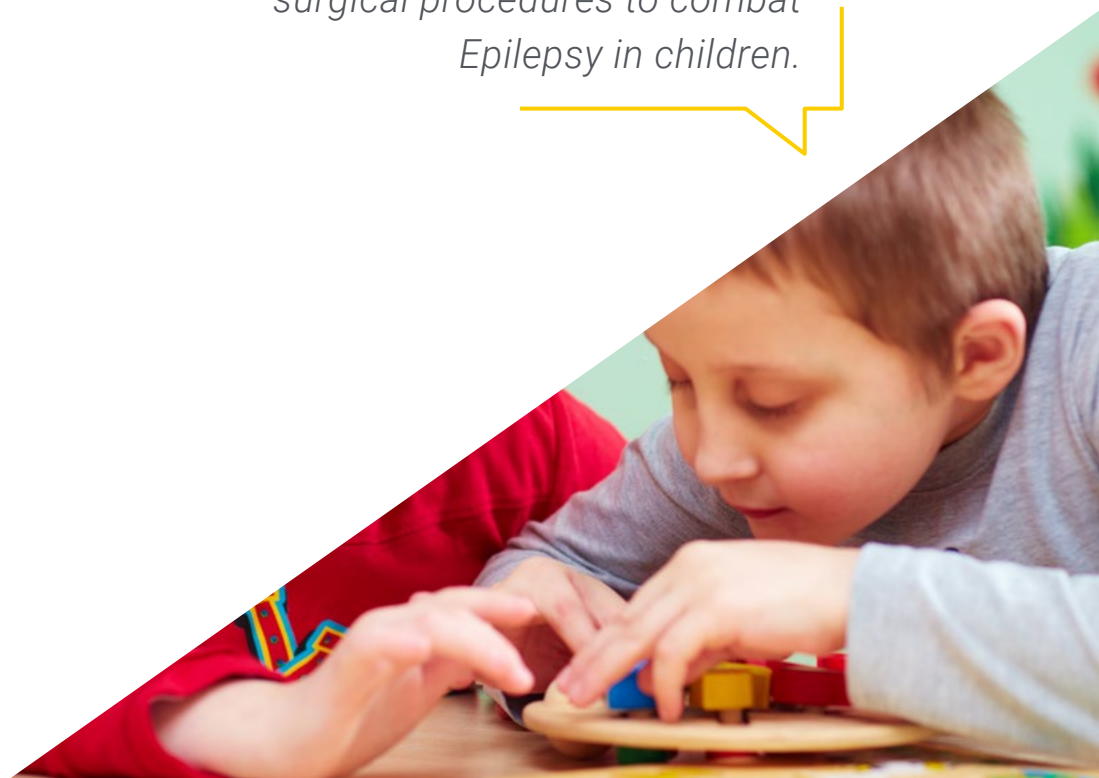
*In just 3 weeks of practical, face-to-face and intensive internship, TECH guarantees you the necessary skills to implement various care strategies in the care of your patients and in your daily professional practice"*

This Hybrid Professional Master's Degree program is aimed at updating medical professionals who develop their healthcare activity around diabetic patients. The contents are based on the latest scientific evidence, and oriented in a didactic way to integrate theoretical knowledge in daily medical practice and promote better decision making in the approach to patients.

Thanks to the multimedia content, developed with the latest educational technology, medical professionals will benefit from 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 professional must try to solve the different professional practice situations that arise throughout the program. For this purpose, the students will be assisted by an innovative interactive video system created by renowned and experienced experts.

*Dedicate 1,500 hours of study to the theoretical learning of Pediatric Neurology with the help of TECH's innovative teaching methodologies.*

*Enroll now, and you will be able to incorporate into your medical practice the most sophisticated surgical procedures to combat Epilepsy in children.*





02

# Why Study this Hybrid Professional Master's Degree?

In the medical sciences, it is not enough to have theoretically trained specialists. In health areas such as Pediatric Neurology, professionals must also have the best practical skills. For this reason, TECH has created this Hybrid Professional Master's Degree that combines 100% online learning of the most innovative aspects of this health discipline with a face-to-face, intensive and immersive learning stay in a hospital institution of international renown.





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*With the help of this program, you will acquire greater control over the most advanced and recently applied neurosurgical techniques"*

### 1. Updating from the Latest Technology Available

In this academic syllabus, TECH will update the neuropsychiatrist on the latest developments related to the diagnosis of neuromuscular diseases in children and the devices needed to treat neurodevelopmental disorders. From the face-to-face and intensive phase of this learning modality, you will acquire extensive skills for the handling of all these tools.

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

This Hybrid Professional Master's Degree will be assisted by leading experts in Pediatric Neurology. In the first educational phase, it will be the teachers who will offer their specialized guidance. Then, in the practical internship, the physician will be supported by prestigious professionals based in the hospital that will host them for this type of training.

### 3. Entering First-Class Clinical Environments

TECH has carefully selected the medical facilities that will host its graduates during the 3-week internship that is part of this qualification. The reason for this careful selection has been to find clinical environments where the student has access to the best experts and health technologies of greater scope and modernity.





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

This program breaks several schemes in the educational market, leaving aside those degrees where the theoretical load prevails. For this reason, TECH offers you a learning modality where the didactic study is integrated with a 100% practical and face-to-face stay of 3 weeks, in a reference health institution. From this Hybrid Professional Master's Degree, the specialist will have the most demanded skills for the diagnosis and updated treatment of neurological pathologies in pediatric ages.

#### 5. Expanding the Boundaries of Knowledge

During this Hybrid Professional Master's Degree, the physician will have access to highly prestigious hospital institutions, located in different latitudes. In this way, they will be trained in accordance with international standards and modalities of care. Therefore, they will expand their work horizons and incorporate the most advanced practices to their personal curriculum.

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



# 03 Objectives

The design of this program, composed of two different educational stages, allows the physician to achieve many academic objectives. On the one hand, they will learn updated contents, 100% online, on a theoretical platform without rigid learning timetables. On the other hand, they will apply everything they have studied in a first level practical stay in a prestigious hospital institution. This combination will help students to question the most innovative procedures of Pediatric Neurology in their professional practice in a holistic way.



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*Thanks to TECH, you will broaden your skills regarding the management of complex pathologies such as Epilepsy and Hydrocephalus, accessing the latest scientific evidence on these topics"*





## General Objective

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- The main objective of this Hybrid Professional Master's Degree in Pediatric Neurology and Neurodevelopment is to update the specialist's knowledge regarding the different syndromic conditions that may present under the study of these disciplines. From this point, the program also promotes the main work strategies in this field of care that have been developed in recent years due to scientific and technological advances. It will also favor the acquisition of technical skills and abilities, through a powerful didactic strategy, based on theoretical simulation guides and through a hands-on, face-to-face and immersive practical stay



*Through this qualification, you will master the main protocols to address neurological emergencies in children and adolescents. and adolescent"*







## Specific Objectives

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### Module 1. Update on Neurology Consultations

- ♦ Perform a correct anamnesis in pediatric neurology
- ♦ Apply neurological assessment scales

### Module 2. Advances in Prenatal and Neonatal Neurology

- ♦ Explain the procedure for neurological examination of newborns and infants
- ♦ Identify the clinical neurological examinations performed in newborns and in children up to one year of age

### Module 3. Advances in Central and Peripheral Motor Disorders

- ♦ Conduct psychomotor developmental assessment in a thorough and rigorous manner
- ♦ Recognize warning signs in the evaluation of psychomotor development

### Module 4. Update on Inborn Errors of Metabolism

- ♦ To develop genetic and biochemical studies for the identification of the main congenital diseases
- ♦ Examine metabolism of the patients and identify their deficiencies

### Module 5. Advances in Developmental, Learning and Neuropsychiatric Disorders

- ♦ Describe the application of diagnostic imaging in neurodevelopmental assessment and neuropathology
- ♦ Define the correct neuropsychological examination for school children

### **Module 6. Update on Neurosurgical Pathology in Pediatric Neurology**

- ♦ Explain the use of neurophysiological studies in the diagnosis and evaluation in neuropediatrics
- ♦ Correct interpretation of the Electroencephalogram and Electroneurogram in the field of Neuropediatrics
- ♦ Implement visual, trunk and somatosensory potentials for neuropediatric assessment

### **Module 7. Advances in Infectious, Parainfectious, Inflammatory and/or Autoimmune Diseases of the Nervous System**

- ♦ Address congenital bacterial infections that can cause neurological and neurodevelopmental involvement
- ♦ Master the causes of neurological involvement when related to congenital viral infections

### **Module 8. Malformations, Chromosomal Disorders and Other Genetic Disorders of the CNS**

- ♦ Determine the main central nervous system abnormalities
- ♦ Identify the etiology and risk factors of cerebral palsy
- ♦ Understand the consequences of aminoacidopathies and organic acidemias in neuropediatrics
- ♦ Describe the symptoms, diagnosis and treatment of psychomotor developmental delay and mental retardation







### **Module 9. Advances in Related Areas. Neuro-Ophthalmology, Neurology, Nutrition**

- ♦ Explain Juvenile Myasthenia Gravis and other neuromuscular junction disorders
- ♦ Recognize the main disorders that occur in child patients and analyze their derivations
- ♦ Delve into neuroophthalmology, neurology and nutrition and their direct impact on the patient

### **Module 10. Advances in Neurological Emergencies**

- ♦ Define the diagnosis and treatment of learning disorders
- ♦ Classify Primary Tumors of the Nervous System and their treatments
- ♦ Explain the treatment of Primary Tumors in the Nervous System
- ♦ Manage nutritional recommendations in neurological disorders

### **Module 11. Advances in Paroxysmal Disorders**

- ♦ Assessing the symptomatology and appropriate treatment for children with bowel and bladder control disorders
- ♦ Diagnosing sleep disorders in children and teenagers
- ♦ Describe epilepsy according to the stages of child development
- ♦ Explain the diagnosis and appropriate treatment of childhood headaches
- ♦ Distinguish the Differentiate meningeal syndromes and define how they should be approached and treated

# 04 Skills

After completing this Hybrid Professional Master's Degree, the physician will be able to fully manage the latest tools and techniques in Pediatric Neurology and Neurodevelopment. Through these competencies, the physician will be able to deal with complex cases and achieve more precise results. Therefore, in addition to gaining the respect of the scientific community, they will offer their patients an excellent clinical and surgical practice.



A close-up photograph of a young child's face, showing their eyes, nose, and a slight smile. The child has light brown hair and green eyes. The image is partially obscured by a diagonal white line that separates it from a dark blue background on the right.

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*Incorporate into your daily medical work the most comprehensive and recently applied neurorehabilitation strategies that are used today for the benefit of children and teenagers with neurodevelopmental difficulties"*





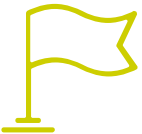
## General Skills

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- Possess and understand knowledge that provides a basis or opportunity to be original when developing and/or applying ideas, often in a research context
- Apply acquired knowledge and problem-solving skills in new or unfamiliar environments within broader (or multidisciplinary) contexts related to the field of study
- Integrate knowledge and face the complexity of making judgments based on incomplete or limited information, including reflections on the social and ethical responsibilities linked to the application of their knowledge and judgments
- Know how to communicate conclusions, knowledge, and supporting arguments to specialized and non-specialized audiences in a clear and unambiguous way







## Specific Skills

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- ♦ Properly perform neurologic screening at all stages of child development
- ♦ Implement imaging and complementary tests in the appropriate study of child development
- ♦ Identify the involvement of prenatal central nervous system infections
- ♦ Define the implications of fetal malformations on neurodevelopment
- ♦ Define the neurodevelopmental implications of trauma
- ♦ Identify and treat inborn errors of metabolism in the context of neurological pathology
- ♦ Apply the appropriate treatment in the case of central and peripheral motor disorders
- ♦ Define and treat pervasive developmental disorders/autism spectrum disorders
- ♦ Apply the appropriate treatment in Attention Deficit Hyperactivity Disorder
- ♦ Explain the current approach to paroxysmal disorders in the pediatric age range
- ♦ Define the disorders requiring neurosurgical treatment in pediatric neurology
- ♦ Identify the neurological alterations of the different malformations, chromosomal and other genetic alterations of the central nervous system
- ♦ Define the impact on the development of Neuro-Ophthalmology and neurotology
- ♦ Apply the appropriate nutritional and pharmacological treatment in Neuropediatrics
- ♦ Address the different neurological emergencies that may occur in the pediatric age range



*Get up to date on the management of autoimmune pathologies related to the infant brain with the innovative contents of this Hybrid Professional Master's Degree"*

05

# Course Management

The faculty members of this degree have a distinguished career in the field of Pediatric Neurology. In addition to their active work in health care, many of them have participated in clinical trials, field research and have published academic articles, attesting to their high scientific capacity. TECH has offered them the responsibility of creating an updated syllabus for this program, and they have responded with a comprehensive curriculum. In this way, through the personalized guidance of these teachers, the neuropsychiatrist will achieve a comprehensive management of the resources and tools available for the care of children and adolescents with pathologies of the central nervous system.



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*The best teachers are just a click away from you. Don't waste any more time and enroll with TECH as soon as possible"*

## Management



### Dr. Fernández Fernández, Manuel Antonio

- Director of the Andalusian Institute of Pediatric Neurology. Sevilla, España
- Director of the Pediatric Neurology Area at Hospital San Agustín
- Director of the Pediatric Neurology Area at Hospital Quirónsalud Infanta Luisa
- Accreditation in Neuropediatrics by the Spanish Society of Pediatric Neurology.(SENEP)
- Degree in Medicine and Surgery from the University of Cadiz
- Master's Degree in Management and Planning of Care Services at CTO Business School
- Master's Degree in Entrepreneurship from GADE Business School
- Master's Degree in Leadership and Management Skills from GADE Business School
- Master's Degree in Clinical Trials from the University of Seville
- Member of: Asociación Española de Pediatría (AEP), Asociación Española para la Investigación en Errores Innatos del Metabolismo (AEIEM)Asociación Española para el Estudio de los Errores Congénitos del Metabolismo (AECOM), Sociedad Española de Pediatría de Atención Primaria (SEPEAP), Sociedad Española de Psiquiatría Infantil (SEPI), Sociedad Española de Pediatría Hospitalaria (SEPHO), European Academy of Paediatrics (EAP), Child Neurology Society (CNS), European Pediatric Association (EPA/UNEPSA), Federación Mundial de Asociaciones de TDAH



### **Dr. Fernández Jaén, Alberto**

- Head of the Child Neurology Department, Quirón University Hospital, Madrid Madrid
- CADE Medical Director
- Degree in Medicine and Surgery
- Specialist in Child Neurology
- Author and contributor in scientific papers

**Dr. Barbero Aguirre, Pedro**

- ♦ Pediatric Neurologist Specialized in ADHD
- ♦ Head of the Neurodevelopment Unit at the University Hospital and Polytechnic La Fe. Valencia
- ♦ Faculty Specialist in Pediatric Neurology at the 9 de Octubre Hospital
- ♦ Specialist physician at the Virgen de la Salud Hospital

**Dr. Eiras Puñal, Jesús**

- ♦ Unit of the Pediatric Neurology Service at the Clinical Hospital university of Santiago. Compostela, Spain
- ♦ Specialist physician at Virgen de la Galicia Hospital.. Santiago de Compostela
- ♦ PhD in Medicine and Surgery from the University of Santiago de Compostela
- ♦ Member of: Spanish Society of Pediatrics, Spanish Society of Pediatric Neurology

**Dr. Hidalgo Vicario, MARÍA Inés**

- ♦ Medical Specialist in Primary Care Pediatrics at the University Children's Hospital Niño Jesús. Madrid
- ♦ President of the Spanish Society of Adolescent Medicine
- ♦ Childcare Physician at the Ministry of Health and Consumer Affairs
- ♦ National Member of the Board of Directors of the Spanish Association of Pediatrics
- ♦ Doctorate in Medicine from the Autonomous University Madrid

**Dr. Fernández Perrone, Ana Laura**

- ♦ Pediatric Neurologist at Quirón Salud University Hospital Madrid
- ♦ Doctor Specialist in Pediatric Neurology at the Quirón Salud University Hospital Madrid
- ♦ Pediatric Neurologist at the Hospital Complex Ruber Juan Bravo de Quirónsalud
- ♦ Member of the Spanish Society of Neurology

**Ms. Carvalho Gómez, Carla**

- ♦ Specialist in Pediatric Neuropsychology
- ♦ Specialist in the University Hospital and Polytechnic La Fe
- ♦ Specialist in Neuropsychology at at Virgen de La Macarena University Hospital
- ♦ Professor in Neuropsychology Andalusian Institute of Pediatric Neurology
- ♦ Neuropsychology teacher at the European Institute of Neuropsychology
- ♦ Lecturer in the Master's Degree in Pediatric Neurology and Neurodevelopment from CEU Cardenal Herrera University
- ♦ Degree in Psychology with a Specialization in Neuropsychology from the University of Seville
- ♦ Master's Degree in Advanced Studies in Brain and Behavior by the University of Seville
- ♦ Postgraduate PROFESSIONAL MASTER'S DEGREE in General Health Psychology, University of La Rioja
- ♦ Master's Degree in Functional Criteria Neuropsychology from the Pablo Olavide University





**Dr. Ros Cervera, Gonzalo**

- ♦ Neuropediatrician at IMED Valencia
- ♦ Neuropediatrician at General University Hospital of Elda
- ♦ Neuropediatrician at Xàtiva Hospital
- ♦ Neuropediatrician at Valencian Institute of Neurosciences(IVANN)
- ♦ Neuropediatrician at Hospital Francesc de Borja
- ♦ Specialist in the Department of Pediatrics at Móstoles University Hospital
- ♦ Degree in Medicine and Surgery from the University of Valencia
- ♦ Postgraduate Diploma via MIR as a family physician at the Hospital Universitari Vall d'Hebrón
- ♦ MIR Postgraduate Diploma in Pediatrics and its specific areas at La Fe University Hospital. Valencia, Spain
- ♦ Sub-specialization in Neuropediatrics in the Department of Child Neurology at the University Hospital La Fe. Valencia, Spain
- ♦ Training stay at the Neurology Department of the Children's Hospital Sant Joan de Déu. Barcelona
- ♦ International training stay at the Children's Hospital of St. Gallen. Switzerland
- ♦ Graduate in Research Sufficiency in the Autonomous University of Barcelona
- ♦ Neuropediatrician accredited by the Spanish Association of Pediatrics

**Dr. Lefa Sarane, Eddy Ives**

- ♦ Pediatrician specializing in Psychiatry Child and Adolescent Psychiatry at HM University Hospital
- ♦ Pediatrician at HM Nens Hospital
- ♦ Pediatrician in HM Sant Jordi Hospital
- ♦ Lecturer of Master's Degree in Academic Institutions
- ♦ Doctor of Medicine
- ♦ Degree in Medicine and Surgery from the University of Barcelona
- ♦ Master's Degree in Paedopsychiatry and Child and Adolescent Psychology from the Autonomous University of Barcelona
- ♦ Master's Degree in Neuropediatrics and Neurodevelopment by CEU Cardenal Herrera University
- ♦ Coordinator of the ADHD Working Group of the Spanish Society of Adolescent Medicine (SEMA)
- ♦ Member of: Board of Directors of the Society of Child Psychiatry of the Spanish Association of Pediatrics, Advisory Committee of the Adana Foundation (Insomnia Association for Children, Adolescents and Adults), Pedagogical Committee of the Training Program for the Promotion of Child and Adolescent Mental Health from Pediatrics of the Catalan Institute of Health

**Dr. Lorenzo Sanz, Gustavo**

- ♦ Head of the of the Child Neurology Unit at the Ramón y Cajal University Hospital
- ♦ Associate Professor, University of Alcalá
- ♦ Doctor of Medicine and Surgery
- ♦ Specialist in pediatrics with Accreditation in pediatric Neurology diseases
- ♦ Author of more than 200 research papers in national and international journals
- ♦ Principal investigator and collaborator in numerous internationally funded research projects

**Dr. Málaga Diéguez, Ignacio**

- ♦ Pediatrician Expert in Neuropediatrics
- ♦ Assistant Physician of the Neuropediatrics Unit at the University Hospital Central de Asturias
- ♦ Neuropediatrician in the Neurological Institute Doctor Mateos
- ♦ Author of publications in national and international scientific journals
- ♦ Professor in undergraduate and postgraduate university studies
- ♦ Doctor of Medicine, University of Oviedo
- ♦ Master's Degree in Child Neurology, University of Barcelona
- ♦ Member of: SENEP, AEP, EPNS, ILAE, SCCALP

**Dr. Téllez de Meneses Lorenzo, Montserrat Andrea**

- ♦ Pediatric Neurologist specialized in Autism and Communication Disorders
- ♦ Specialist in the University Hospital and Polytechnic La Fe
- ♦ Pediatric Neurologist in Neural Neurological Rehabilitation Clinics
- ♦ PhD in Medicine and Surgery from the University of Valencia
- ♦ Member of the English Society of Pediatrics

**Dr. Fernández-Mayoralas, Daniel Martín**

- ♦ Neuropediatrician at Gandía Hospital. Madrid
- ♦ Neuropediatrician at La Zarzuela University Hospital
- ♦ Assistant Physician of the Child Neurology Canary Islands Health, Quirón University Hospital, Madrid Madrid
- ♦ Author of the book "Specialization in Hearing and Language. Anatomy, physiology, and neurology of language
- ♦ PhD in Medicine and Surgery from the University of Murcia
- ♦ Degree in Medicine and Surgery from the Faculty of Medicine of the Murcia University
- ♦ Doctor with a Cum Laude doctoral thesis in Medicine and Surgery from the University of Murcia
- ♦ Master's Degree in Neuropediatrics from the Complutense University of Madrid
- ♦ Member of: The Spanish Society of Pediatric Neurology (SENEP), The Spanish Society of Pediatrics (SEP), The Society of Pediatrics of Madrid and Castilla-La Mancha

**Dr. Amado Puentes, Alfonso**

- ♦ Pediatric Physician at Amado Pediatric Clinic SLP
- ♦ Founder and Physician of La Ruta Azul
- ♦ Faculty Specialist in Neuropediatrics
- ♦ Pediatric Neurologist at the University Hospital Complex of Vigo
- ♦ Degree in Medicine and Surgery from the University of Santiago de Compostela
- ♦ Doctoral Thesis from the University of Santiago de Compostela
- ♦ Diploma of Advanced Studies from the University of Vigo
- ♦ Master's Degree in Pediatric Neurology and Neurodevelopment by CEU Cardenal Herrera University

**Dr. Gilibert Sánchez, Noelia**

- ♦ Neuropsychologist at Andalusian Institute of Pediatric Neurology
- ♦ Collaborator of the project "The Neuropediatrician of Online Consultations"
- ♦ Master's in Advanced Studies in Brain and Behavior in the University of Seville
- ♦ Degree in Psychology from the University of Seville

# 06

## Educational Plan

The academic modules of this syllabus reflect the latest scientific evidence in the field of Pediatric Neurology and Neurodevelopment. The syllabus examines, among other aspects, the latest trends and protocols for the evaluation of brain functions in prenatal and neonatal patients. It also delves into the most significant advances in the treatment of neuromuscular diseases that appear in infancy. At the same time, the course supports the learning of its contents with theoretical elements and various multimedia resources such as videos, infographics and interactive summaries.





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*100% online and interactive: this is the TECH platform where you will study the most up-to-date aspects of Pediatric Neurology and Neurodevelopment”*

## Module 1. Update on Neurology Consultations

- 1.1. Medical History in Pediatric Neurology
  - 1.1.1. Clinician Personal Skills
  - 1.1.2. Advantages and Disadvantages of Good Communication and Information
  - 1.1.3. Orientation of the Medical History According to Disorders
    - 1.1.3.1. Headaches
    - 1.1.3.2. Epilepsy
  - 1.1.4. Orientation of Medical History According to Age
    - 1.1.4.1. Prenatal Medical History
    - 1.1.4.2. Neonatal Medical History
    - 1.1.4.3. Medical History in Young Children
    - 1.1.4.4. Medical History in Older Children
  - 1.1.5. Medical History of Psychomotor Development
  - 1.1.6. Medical History of Language Development
  - 1.1.7. Medical History of the Mother/Father-Child Bond
  - 1.1.8. Personal and Family History
- 1.2. Neurological Examination of Newborns and Infants
  - 1.2.1. Basic Neurological Examination
  - 1.2.2. General Data
  - 1.2.3. External Aspect
  - 1.2.4. Functional Behaviors
  - 1.2.5. Sensory Functions
  - 1.2.6. Motility
  - 1.2.7. Primary Reflexes and Postural Attitudes
  - 1.2.8. Tone, Hand Pressure and Manipulation
  - 1.2.9. Cranial Nerves
  - 1.2.10. Sensitivity
  - 1.2.11. Neurological Assessment Scales
- 1.3. Neurological Examination of Older Children
- 1.4. Neuropsychological Examination of Preschool Children
  - 1.4.1. The 3 First Years of Life
  - 1.4.2. Development
  - 1.4.3. First Trimester
  - 1.4.4. 3-6 Month Period
  - 1.4.5. 6-9 Month Period
  - 1.4.6. 9-12 Month Period
  - 1.4.7. 12-18 Month Period
  - 1.4.8. 18-24 Month Period
  - 1.4.9. 24-36 Month Period
- 1.5. Neuropsychological Examination of School Children
  - 1.5.1. Evolution from Age 3 to 6
  - 1.5.2. Development
  - 1.5.3. Cognitive Assessment
  - 1.5.4. Language Evaluation
  - 1.5.5. Attention Evaluation
  - 1.5.6. Memory Evaluation
  - 1.5.7. Evaluation of Psychomotor Skills and Rhythm
- 1.6. Psychomotor Development
  - 1.6.1. The Concept of Psychomotor Development
  - 1.6.2. Psychomotor Development Assessment
  - 1.6.3. Warning Signs in Psychomotor Development Evaluation
  - 1.6.4. Psychomotor Development Evaluation Scales
- 1.7. Complementary Evaluations
  - 1.7.1. Prenatal Diagnosis
  - 1.7.2. Genetic Studies
  - 1.7.3. Biochemical Studies
    - 1.7.3.1. Blood
    - 1.7.3.2. Urine
  - 1.7.4. Cerebrospinal Fluid
  - 1.7.5. Diagnostic Imaging
    - 1.7.5.1. Ultrasound
    - 1.7.5.2. CAT
    - 1.7.5.3. Magnetic Resonance
    - 1.7.5.4. Positron Emission Tomography (PET)
    - 1.7.5.5. Single Photon Emission Computed Tomography (SPECT)
    - 1.7.5.6. Magnetoencephalography



- 1.7.6. Neurophysiological Studies
  - 1.7.6.1. Electroencephalogram
  - 1.7.6.2. Visual Evoked Potential of the Torso and Somatosensation
  - 1.7.6.3. Electroneurogram (ENG)
  - 1.7.6.4. Electromyogram (EMG)
  - 1.7.6.5. Nerve Conduction Velocity (NCV)
  - 1.7.6.6. Single Fiber Study
- 1.7.7. Neuropathological Studies
- 1.7.8. Neuropsychological Studies

## Module 2. Advances in Prenatal and Neonatal Neurology

- 2.1. Prenatal Central Nervous System Infections
  - 2.1.1. Introduction
  - 2.1.2. General Pathogenic Aspects
  - 2.1.3. Congenital Viral Infections
    - 2.1.3.1. Cytomegalovirus
    - 2.1.3.2. Rubella
    - 2.1.3.3. Herpes
  - 2.1.4. Bacterial Congenital Infections
    - 2.1.4.1. Syphilis
    - 2.1.4.2. Listeria
    - 2.1.4.3. Lyme Disease
  - 2.1.5. Congenital Infections due to Parasites
    - 2.1.5.1. Toxoplasma
  - 2.1.6. Other Infections
- 2.2. Vascular Malformations
  - 2.2.1. Introduction
  - 2.2.2. The Embryonic Process and Its Disorders
  - 2.2.3. Main Central Nervous System Abnormalities
    - 2.2.3.1. Anomalies of Dorsal Induction
    - 2.2.3.2. Anomalies of Ventral Induction
    - 2.2.3.3. Midline Disorders
  - 2.2.3.4. Cell Proliferation-Differentiation Abnormalities
  - 2.2.3.5. Neuronal Migration Abnormalities
  - 2.2.3.6. Posterior Fossa Structure Abnormalities
- 2.3. Perinatal Trauma
  - 2.3.1. Perinatal Neurological Trauma
  - 2.3.2. Hypoxic-Ischemic Encephalopathy
    - 2.3.2.1. Concept, Classification and Pathophysiology
    - 2.3.2.2. Detection, Management and Prognosis
    - 2.3.2.3. Newborn Intracranial Hemorrhage
    - 2.3.2.4. Germinal Matrix Hemorrhage-Intraventricular Hemorrhage
    - 2.3.2.5. Periventricular Hemorrhagic Infarction
    - 2.3.2.6. Cerebellar Hemorrhage
    - 2.3.2.7. Supratentorial Hemorrhage
- 2.4. Neonatal Metabolic Disorders with Neurological Effects
  - 2.4.1. Introduction
  - 2.4.2. Neonatal Screening for Inborn Errors of Metabolism
  - 2.4.3. Diagnosis of Metabolic Disease in the Neonatal Period
  - 2.4.4. Neonatal Metabolic Disease with Seizures
  - 2.4.5. Neonatal Metabolic Disease with Neurological Deterioration
  - 2.4.6. Neonatal Metabolic Disease with Hypotonia
  - 2.4.7. Neonatal Metabolic Disease with Dysmorphias
  - 2.4.8. Neonatal Metabolic Disease with Heart Disease
  - 2.4.9. Neonatal Metabolic Disease with Hepatic Symptoms
- 2.5. Neonatal Seizures
  - 2.5.1. Introduction to Neonatal Crises
  - 2.5.2. Etiology and Pathophysiology
  - 2.5.3. Definition and Characteristics of Neonatal Crises
  - 2.5.4. Classification of Neonatal Crises
  - 2.5.5. Clinical Manifestations
  - 2.5.6. Diagnosis of Neonatal Crises
  - 2.5.7. Treatment of Neonatal Crises
  - 2.5.8. Prognosis of Neonatal Crises

- 2.6. Neonatal Intracranial Infections
- 2.7. Newborns at High Neurological Risk
  - 2.7.1. Concept
  - 2.7.2. Causes
  - 2.7.3. Detection
  - 2.7.4. Monitoring

### Module 3. Advances in Central and Peripheral Motor Disorders

- 3.1. Cerebral Palsy
  - 3.1.1. Concept
  - 3.1.2. Etiology and Risk Factors
    - 3.1.2.1. Prenatal Factors
      - 3.1.2.1.1. Perinatal Factors
      - 3.1.2.1.2. Postnatal Factors
  - 3.1.2. Clinical Forms
    - 3.1.2.1. Spastic ICP
    - 3.1.2.2. Spastic Diplegia
    - 3.1.2.3. Spastic Hemiplegia
    - 3.1.2.4. Spastic Triplegia
    - 3.1.2.5. Dyskinetic or Athetoid ICP
    - 3.1.2.6. Ataxic ICP
  - 3.1.3. Comorbid Disorders
  - 3.1.4. Diagnosis
  - 3.1.5. Treatment
- 3.2. Motor Neuron Diseases in Childhood
  - 3.2.1. Generalized Forms of Motor Neuron Diseases
    - 3.2.1.1. Spinal Muscular Atrophy
    - 3.2.1.2. Other Variations of Spinal Muscular Atrophy
  - 3.2.2. Focal Forms of Motor Neuron Diseases in Childhood
- 3.3. Juvenile Myasthenia Gravis and Other Neuromuscular Junction Disorders
  - 3.3.1. Juvenile Myasthenia Gravis in Childhood
  - 3.3.2. Transient Neonatal Myasthenia Gravis
  - 3.3.3. Congenital Myasthenic Syndromes
  - 3.3.4. Childhood Botulism

- 3.4. Childhood Muscular Dystrophy
  - 3.4.1. Childhood Muscular Dystrophy: Dystrophinopathies
  - 3.4.2. Childhood Muscular Dystrophies Other than Dystrophinopathies
- 3.5. Childhood Myotonic Disorders
  - 3.5.1. Childhood Congenital Myopathies
  - 3.5.2. Childhood Inflammatory and Metabolic Myopathies
- 3.6. Childhood Neuropathies
  - 3.6.1. Motor Neuropathies
  - 3.6.2. Sensorimotor Neuropathies
  - 3.6.3. Sensory Neuropathies

### Module 4. Update on Inborn Errors of Metabolism

- 4.1. Introduction to Inborn Errors of Metabolism (IEM)
  - 4.1.1. Introduction and Concept
  - 4.1.2. Etiology and Classification
  - 4.1.3. Clinical Manifestations
  - 4.1.4. General Diagnostic Process
  - 4.1.5. General Intervention Guidelines
- 4.2. Mitochondrial Diseases
  - 4.2.1. Oxidative Phosphorylation Defects
  - 4.2.2. Krebs Cycle Defect
  - 4.2.3. Etiology and Pathophysiology
  - 4.2.4. Classification
  - 4.2.5. Diagnosis
  - 4.2.6. Treatment
- 4.3. Fatty Acid  $\beta$ -Oxidation Defects
  - 4.3.1. Introduction to Beta-Oxidation Disorders
  - 4.3.2. Pathophysiology of Beta-Oxidation Disorders
  - 4.3.3. Clinical Manifestations of Beta-Oxidation Disorders
  - 4.3.4. Diagnosis of Beta-Oxidation Disorders
  - 4.3.5. Treatment of Beta-Oxidation Disorders

- 4.4. Gluconeogenesis Defects
  - 4.4.1. Etiology and Pathophysiology
  - 4.4.2. Classification
  - 4.4.3. Diagnosis
  - 4.4.4. Treatment
- 4.5. Peroxisomal Diseases
  - 4.5.1. Zellweger Syndrome
  - 4.5.2. X-Linked Adrenoleukodystrophy
  - 4.5.3. Other Peroxisomal Diseases
- 4.6. Congenital Disorders of Glycosylation
  - 4.6.1. Etiology and Pathophysiology
  - 4.6.2. Classification
  - 4.6.3. Diagnosis
  - 4.6.4. Treatment
- 4.7. Neurotransmitter IEM
  - 4.7.1. Introduction to Neurotransmitter Metabolic Diseases
  - 4.7.2. General Concepts of Neurotransmitter Metabolic Diseases
  - 4.7.3. GABA Metabolism Disorders
  - 4.7.4. Biogenic Amine Disorder
  - 4.7.5. Startle Disease or Hereditary Hyperekplexia
- 4.8. Creatine Brain Defects
  - 4.8.1. Etiology and Pathophysiology
  - 4.8.2. Classification
  - 4.8.3. Diagnosis
  - 4.8.4. Treatment
- 4.9. Aminoacidopathies
  - 4.9.1. Phenylketonuria
  - 4.9.2. Hyperphenylalaninemia
  - 4.9.3. Tetrahydrobiopterin Deficiency
  - 4.9.4. Non-Ketotic Hyperglycemia
  - 4.9.5. Maple Syrup Urine Disease
  - 4.9.6. Homocystinuria
  - 4.9.7. Tyrosinemia Type II
- 4.10. Purines and Pyrimidines IEM
  - 4.10.1. Etiology and Pathophysiology
  - 4.10.2. Classification
  - 4.10.3. Diagnosis
  - 4.10.4. Treatment
- 4.11. Lysosomal Diseases
  - 4.11.1. Mucopolysaccharidosis
  - 4.11.2. Oligosaccharidosis
  - 4.11.3. Sphingolipidosis
  - 4.11.4. Other Lysosomal Diseases
- 4.12. Glycogenesis
  - 4.12.1. Etiology and Pathophysiology
  - 4.12.2. Classification
  - 4.12.3. Diagnosis
  - 4.12.4. Treatment
- 4.13. Organic Acidemias
  - 4.13.1. Methylmalonic Acidemia
  - 4.13.2. Propionic Acidemia
  - 4.13.3. Isovaleric Acidemia
  - 4.13.4. Glutaric Aciduria Type I
  - 4.13.5. 3-Methyl Crotonyl Glyciduria
  - 4.13.6. Holocarboxylase Synthetase Deficiency
  - 4.13.7. Biotinidase Deficiency
  - 4.13.8. 3-Methylglutaconyl Aciduria Type I
  - 4.13.9. 3-Methylglutaconyl Aciduria Type III
  - 4.13.10. D-2 Hydroxyglutaric Aciduria
  - 4.13.11. L-2 Hydroxyglutaric Aciduria
  - 4.13.12. 4-Hydroxybutyric Aciduria
  - 4.13.13. Deficiency of Acetoacetyl CoA-Thiolase
- 4.14. Carbohydrates IEM
  - 4.14.1. Etiology and Pathophysiology
  - 4.14.2. Classification
  - 4.14.3. Diagnosis
  - 4.14.4. Treatment

**Module 5.** Advances in Developmental, Learning and Neuropsychiatric Disorders

- 5.1. Delayed Psychomotor Development
  - 5.1.1. Concept
  - 5.1.2. Etiology
  - 5.1.3. Epidemiology
  - 5.1.4. Symptoms
  - 5.1.5. Diagnosis
  - 5.1.6. Treatment
- 5.2. Generalized Developmental Disorders
  - 5.2.1. Concept
  - 5.2.2. Etiology
  - 5.2.3. Epidemiology
  - 5.2.4. Symptoms
  - 5.2.5. Diagnosis
  - 5.2.6. Treatment
- 5.3. Attention Deficit and Hyperactivity Disorder
  - 5.3.1. Concept
  - 5.3.2. Etiology
  - 5.3.3. Epidemiology
  - 5.3.4. Symptoms
  - 5.3.5. Diagnosis
  - 5.3.6. Treatment
- 5.4. Eating Disorders
  - 5.4.1. Introduction: Anorexia, Bulimia and Binge Eating Disorder
  - 5.4.2. Concept
  - 5.4.3. Etiology
  - 5.4.4. Epidemiology
  - 5.4.5. Symptoms
  - 5.4.6. Diagnosis
  - 5.4.7. Treatment





- 5.5. Sphincter Control Disorder
  - 5.5.1. Introduction: Primary Nocturnal Enuresis and Encopresis
  - 5.5.2. Concept
  - 5.5.3. Etiology
  - 5.5.4. Epidemiology
  - 5.5.5. Symptoms
  - 5.5.6. Diagnosis
  - 5.5.7. Treatment
- 5.6. Psychosomatic/Functional Disorders
  - 5.6.1. Introduction: Conversive Disorders and Simulated Disorders
  - 5.6.2. Concept
  - 5.6.3. Etiology
  - 5.6.4. Epidemiology
  - 5.6.5. Symptoms
  - 5.6.6. Diagnosis
  - 5.6.7. Treatment
- 5.7. Mood Disorders
  - 5.7.1. Introduction: Anxiety and Depression
  - 5.7.2. Concept
  - 5.7.3. Etiology
  - 5.7.4. Epidemiology
  - 5.7.5. Symptoms
  - 5.7.6. Diagnosis
  - 5.7.7. Treatment
- 5.8. Schizophrenia
  - 5.8.1. Concept
  - 5.8.2. Etiology
  - 5.8.3. Epidemiology
  - 5.8.4. Symptoms
  - 5.8.5. Diagnosis
  - 5.8.6. Treatment

- 5.9. Learning Disorders
  - 5.9.1. Introduction
  - 5.9.2. Language Disorders
  - 5.9.3. Reading Disorder
  - 5.9.4. Writing Disorder
  - 5.9.5. Calculation Disorder
  - 5.9.6. Non-Verbal Learning Disorder
- 5.10. Sleep Disorders
  - 5.10.1. Introduction
  - 5.10.2. Conciliation Disorder
  - 5.10.3. Fragmented Sleep Disorder
  - 5.10.4. Delayed Sleep Cycle
  - 5.10.5. Assessment
  - 5.10.6. Treatment

#### Module 6. Update on Neurosurgical Pathology in Pediatric Neurology

- 6.1. Supratentorial CNS Tumors
- 6.2. CNS Infratentorial and Spinal Tumors
- 6.3. Non-Embryonal Brain Tumors in Pediatric and Adolescent Patients
- 6.4. Neuropsychological Assessment and Rehabilitation in Children with CNS Tumors
- 6.5. Non-Oncological Space Occupying Processes
  - 6.5.1. Concept
  - 6.5.2. Classification
  - 6.5.3. Clinical Manifestations
  - 6.5.4. Diagnosis
  - 6.5.5. Treatment
- 6.6. Infantile Hydrocephalus
  - 6.6.1. Concept and Epidemiology
  - 6.6.2. Etiology and Pathophysiology
  - 6.6.3. Classification
  - 6.6.4. Clinical Manifestations
  - 6.6.5. Diagnosis
  - 6.6.6. Treatment

- 6.7. Childhood Cerebrovascular Disease
  - 6.7.1. Concept and Epidemiology
  - 6.7.2. Etiology and Pathophysiology
  - 6.7.3. Classification
  - 6.7.4. Clinical Manifestations
  - 6.7.5. Diagnosis
  - 6.7.6. Treatment

#### Module 7. Advances in Infectious, Parainfectious, Inflammatory and/or Autoimmune Diseases of the Nervous System

- 7.1. Meningeal Syndrome
  - 7.1.1. Bacterial Meningitis
    - 7.1.1.1. Epidemiology
    - 7.1.1.2. Clinical Symptoms
    - 7.1.1.3. Diagnosis
    - 7.1.1.4. Treatment
  - 7.1.2. Acute Viral Meningitis
    - 7.1.2.1. Epidemiology
    - 7.1.2.2. Clinical Symptoms
    - 7.1.2.3. Diagnosis
    - 7.1.2.4. Treatment
- 7.2. Encephalitic Syndrome
  - 7.2.1. Acute and Chronic Encephalitis
    - 7.2.1.1. Epidemiology
    - 7.2.1.2. Clinical Symptoms
    - 7.2.1.3. Diagnosis
    - 7.2.1.4. Treatment
  - 7.2.2. Viral Encephalitis
    - 7.2.2.1. Epidemiology
    - 7.2.2.2. Clinical Symptoms
    - 7.2.2.3. Diagnosis
    - 7.2.2.4. Treatment



- 7.3. Other CNS Infections
  - 7.3.1. Fungal Infections
    - 7.3.1.1. Epidemiology
    - 7.3.1.2. Clinical Symptoms
    - 7.3.1.3. Diagnosis
    - 7.3.1.4. Treatment
  - 7.3.2. Parasite Infections
    - 7.3.2.1. Epidemiology
    - 7.3.2.2. Clinical Symptoms
    - 7.3.2.3. Diagnosis
    - 7.3.2.4. Treatment
- 7.4. Demyelinating and Parainfectious Diseases
  - 7.4.1. Acute Disseminated Encephalomyelitis (ADEM)
  - 7.4.2. Acute Post-Infectious Ataxia
- 7.5. Toxic and Metabolic Encephalopathies
  - 7.5.1. Classification and Types
  - 7.5.2. Epidemiology
  - 7.5.3. Clinical Symptoms
  - 7.5.4. Diagnosis
  - 7.5.5. Treatment

## Module 8. Malformations, Chromosomal Disorders and Other Genetic Disorders of the CNS

- 8.1. Malformations of the CNS
  - 8.1.1. Introduction
  - 8.1.2. Classification
  - 8.1.3. Anomalies of Dorsal Induction
  - 8.1.4. Anomalies of Ventral Induction
  - 8.1.5. Midline Disorders
  - 8.1.6. Cell Proliferation-Differentiation Abnormalities
  - 8.1.7. Neuronal Migration Abnormalities
  - 8.1.8. Posterior Fossa Structure Abnormalities

- 8.2. Most Relevant Chromosomal Alterations in Pediatric Neurology
  - 8.2.1. Introduction
  - 8.2.2. Classification
  - 8.2.3. Autosomal Aneuploidies
  - 8.2.4. Sexual Aneuploidies
- 8.3. Neurocutaneous Syndromes
  - 8.3.1. Neurofibromatosis Type I
  - 8.3.2. Neurofibromatosis Type II
  - 8.3.3. Tuberous Sclerosis
  - 8.3.4. Incontinentia Pigmenti
  - 8.3.5. Sturge-Weber Syndrome
  - 8.3.6. Other Neurocutaneous Syndromes
- 8.4. Other Relevant Genetic Syndromes in Pediatric Neurology
  - 8.4.1. Prader Willi Syndrome
  - 8.4.2. Angelman Syndrome
  - 8.4.3. Fragile X Syndrome
  - 8.4.4. Williams Syndrome
- 8.5. Clinical Application of Genetic Studies in Neuropediatrics
  - 8.5.1. Introduction
  - 8.5.2. Karyotype
  - 8.5.3. Study Fragile X
  - 8.5.4. Subtelomeric FISH Probes
  - 8.5.5. CGH Array
  - 8.5.6. Exome
  - 8.5.7. Sequencing

## Module 9. Advances in Related Areas. Neuro-Ophthalmology, Neurotology, Nutrition

- 9.1. Neuro-Ophthalmology
  - 9.1.1. Papillary Disorders
    - 9.1.1.1. Congenital Abnormalities
    - 9.1.1.2. Papillary Atrophy
    - 9.1.1.3. Papillary Edema
  - 9.1.2. Pupils
    - 9.1.2.1. Anisocoria
    - 9.1.2.2. Sympathetic Paralysis
  - 9.1.3. Oculomotor Dysfunction
    - 9.1.3.1. Ophthalmoplegia
    - 9.1.3.2. Gaze Disorders
    - 9.1.3.3. Apraxia
    - 9.1.3.4. Nystagmus
- 9.2. Neurotology
  - 9.2.1. Hearing
  - 9.2.2. Exploration
  - 9.2.3. Hearing Loss
  - 9.2.4. Vestibular Function
  - 9.2.5. Vestibular Function Alterations
- 9.3. Nutrition in Pediatric Neurology
  - 9.3.1. Normal Nutritional Recommendations
  - 9.3.2. Nutritional Recommendations in Neurological Disorders
  - 9.3.3. Nutritional Supplements
  - 9.3.4. Specific Therapeutic Diets
- 9.4. Pharmacology
  - 9.4.1. Nervous System Pharmacology
  - 9.4.2. Pharmacology in Pediatrics
  - 9.4.3. Drugs Frequently Used in Pediatric Neurology
  - 9.4.4. Polytherapy and Drug Resistance

- 9.5. Social Neuropediatrics
  - 9.5.1. Abuse and Neglect
  - 9.5.2. Affective and Sensory Deprivation
  - 9.5.3. Adoption
  - 9.5.4. Grief

## Module 10. Advances in Neurological Emergencies

- 10.1. Status Epilepticus
  - 10.1.1. Concept and Epidemiology
  - 10.1.2. Etiology and Classification
  - 10.1.3. Clinical Presentation
  - 10.1.4. Diagnosis
  - 10.1.5. Treatment
- 10.2. Coma and Acute Confusional Syndrome
  - 10.2.1. Concept and Epidemiology
  - 10.2.2. Etiology and Classification
  - 10.2.3. Clinical Presentation
  - 10.2.4. Diagnosis
  - 10.2.5. Treatment
- 10.3. Severe Cranioencephalic Trauma
  - 10.3.1. Concept and Epidemiology
  - 10.3.2. Etiology and Classification
  - 10.3.3. Clinical Presentation
  - 10.3.4. Diagnosis
  - 10.3.5. Treatment
- 10.4. Acute Hemiplegia. Stroke
  - 10.4.1. Concept and Epidemiology
  - 10.4.2. Etiology and Classification
  - 10.4.3. Clinical Presentation
  - 10.4.4. Diagnosis
  - 10.4.5. Treatment

- 10.5. Acute Intracranial Hypertension Syndrome. Valvular Dysfunction
  - 10.5.1. Concept and Epidemiology
  - 10.5.2. Etiology
  - 10.5.3. Clinical Presentation
  - 10.5.4. Diagnosis
  - 10.5.5. Treatment
- 10.6. Acute Spinal Cord Injury. Acute Flaccid Paralysis
  - 10.6.1. Concept and Epidemiology
  - 10.6.2. Etiology and Classification
  - 10.6.3. Clinical Presentation
  - 10.6.4. Diagnosis
  - 10.6.5. Treatment
- 10.7. Neurological Emergencies in Pediatric Oncology
  - 10.7.1. Fever
  - 10.7.2. Tumor Lysis Syndrome
  - 10.7.3. Hypercalcemia
  - 10.7.4. Hyperleukocytosis
  - 10.7.5. Superior Vena Cava Syndrome
  - 10.7.6. Hemorrhagic Cystitis

## Module 11. Advances in Paroxysmal Disorders

- 11.1. Febrile Crises
  - 11.1.1. Introduction
  - 11.1.2. Etiology and Genetics
  - 11.1.3. Epidemiology and Classification
  - 11.1.4. Symptoms
  - 11.1.5. Diagnosis
  - 11.1.6. Treatment
- 11.2. Infant Epilepsies
  - 11.2.1. West Syndrome
  - 11.2.2. Malignant Partial Migratory Crises in Breastfeeding Infants
  - 11.2.3. Benign Myoclonic Epilepsy in Children
  - 11.2.4. Myoclonic Astatic Epilepsy
  - 11.2.5. Lennox-Gastaut Syndrome
  - 11.2.6. Benign Idiopathic Partial Epilepsies in Infants and Young Children

- 11.3. School-Age Epilepsies
  - 11.3.1. Epilepsy with Central Temporal Spikes and Related Syndromes
  - 11.3.2. Idiopathic Occipital Epilepsies
  - 11.3.3. Childhood Non-Idiopathic Partial Epilepsies
  - 11.3.4. Childhood Absence Epilepsy
- 11.4. Epilepsy in Older Children and Adolescents
  - 11.4.1. Juvenile Absence Epilepsy
  - 11.4.2. Juvenile Myoclonic Epilepsy
  - 11.4.3. Grand Mal on Awakening
- 11.5. Treatment of Epilepsy in Childhood
  - 11.5.1. Introduction
  - 11.5.2. Antiepileptic Drugs
  - 11.5.3. The Choice of Treatment
  - 11.5.4. The Process of Starting Treatment
  - 11.5.5. Monitoring and Control
  - 11.5.6. Suspending Treatment
  - 11.5.7. Drug Resistance
  - 11.5.8. Alternative Treatments
- 11.6. Headache
  - 11.6.1. Etiology
  - 11.6.2. Epidemiology
  - 11.6.3. Classification
  - 11.6.4. Diagnosis
  - 11.6.5. Complementary Tests
  - 11.6.6. Treatment
- 11.7. Movement Disorders
  - 11.7.1. Introduction
  - 11.7.2. Classification
  - 11.7.3. Disorders with Increased Movement
  - 11.7.4. Dyskinetics: Tics, Chorea and Ballismus
  - 11.7.5. Disorders with Decreased Movement
  - 11.7.6. Hypokinetic-Rigid Syndromes: Parkinsonism

07

# Clinical Internship

After passing the first stage of studies of this qualification, with 1,500 hours of duration, the specialist will have the opportunity to develop a clinical practice, in a prestigious hospital institution. In this institution, they will have the resources and expert advice necessary to update their knowledge in reference to Pediatric Neurology from a direct and immersive point of view.





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*Throughout 3 weeks of hands-on training, you will acquire the absolute knowledge to properly handle the most modern technologies in the Pediatric Neurology setting"*

This educational phase is what distinguishes TECH's Hybrid Professional Master's Degree in Pediatric Neurology and Neurodevelopment from any other degree in the educational market. Its academic modality, based on 3 weeks of face-to-face and intensive stay, in a state-of-the-art hospital center is pioneering in its kind. In addition, specialists have the opportunity to choose the facility that best suits their geographic location and pedagogical improvement interests.

Likewise, in these healthcare institutions, the neuropsychiatrist will have access to the best medical technology and, in particular, to diagnostic devices whose superiority allows for the early identification of complex pathologies. At the same time, they will work together with leading experts in this health discipline who will provide them with innovative care strategies, based on their experience and the use of state-of-the-art health resources and devices. Likewise, the student will have the support of an assistant tutor, a figure included in this didactic methodology to help the specialist to incorporate into different dynamics of the daily professional practice.

The practical part 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 of medicine praxis (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
<b>Trends in Prenatal and Neonatal Neurology</b>	Assessing the infant's alertness, sensitivity to the environment, and orientation to sensory input to determine global brain activity
	Examine cranial nerves to measure brainstem and cranial nerve development
	Measure posture, sound, deep tendon reflexes and intensity to understand motor system function
	To observe generalized movements and assess primitive reflexes as evidence of adequate global coordination in the newborn
<b>Diagnostic Methods in Pediatric Neurology</b>	Perform studies of the nerve cells that control movement using Electromyography tests
	To assess the sensory pathways and brain response to visual, auditory or tactile electrical stimuli by means of Evoked Potentials
	Detect changes in activity, typical of epilepsy or other seizure disorders, through electroencephalography
	Identify abnormal neurological structures by means of interventional studies such as intraoperative neurophysiological monitoring
<b>Advances in the treatment of neuromuscular diseases of the pediatric age</b>	Implement, in the pediatric patient with Duchenne muscular dystrophy, the early use of tibio-peroneal orthoses for nocturnal use to prevent clubfoot, and later ischio-foot orthoses to maintain gait
	Treat with hyperimmune immunoglobulin and plasmapheresis the pathology Acute Inflammatory Demyelinating Polyneuropathy or Guillain Barré Syndrome
	To strengthen the proximal musculature of the pediatric patient and prevent contractures typical of neuropathies by means of Kinesitherapy

Module	Practical Activity
<b>in Infectious, Parainfectious, Inflammatory and/or Autoimmune Diseases of the Nervous System Infant</b>	Early identification and treatment of sequelae of bacterial meningitis, such as Hearing Loss
	Shortening the duration of symptoms of acute disseminated encephalomyelitis by means of pharmacological therapies with corticosteroids
	Follow up children recovering from acute post-infectious Cerebellitis to prevent the development of acute Ataxia
	Differentiate, based on the latest scientific evidence, the different parasites that cause encephalopathies and other infections of the central nervous system
<b>News in the Handling of Neurodevelopment Disorders</b>	Apply neurorehabilitation of fine and gross motor skills in children with learning disabilities and ADHD
	Treating the child with Autism Spectrum Disorders using Occupational Therapy techniques
	Manage the latest pharmacological recommendations for the approach to different Neurodevelopmental disorders
<b>Advances in Pediatric Neurosurgery</b>	Surgically implanting vagus nerve stimulators for various types of seizures and neurological disorders
	Diversion of cerebrospinal fluid from the brain or spinal canal by means of specific procedures to treat inflammations infections and other brain pathologies
	To develop surgical dorsal rhizotomy in children with cerebral palsy and leg spasticity and spasticity in the legs
	To perform endoscopic third ventriculostomy of the third ventricle in children with Hydrocephalus
	Focalize areas of the brain where seizures originate and implant similar receptive neurostimulation devices similar to pacemakers

## 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 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 for Practical Training

The general terms and conditions of the internship agreement for the program are 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?

This Hybrid Professional Master's Degree in Pediatric Neurology and Neurodevelopment is a unique educational opportunity of its kind, thanks to the practical and face-to-face stay that is integrated in it. Based on collaboration agreements, TECH has made a careful selection of the healthcare facilities that will host the neuropsychiatrist for this 3-week clinical practice. The facilities chosen have different geographical locations, giving the specialist the incentive to choose the center of his choice and to prepare themselves academically according to international standards.








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*The practical phase of this Hybrid Professional Master's Degree is the ideal complement to your academic preparation that will lead you to excellence in the field of Pediatric Neurology"*





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



Medicine

### Hospital Maternidad HM Belén

Country	City
Spain	La Coruña

Address: R. Filantropía, 3, 15011, A Coruña

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

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**Related internship programs:**

- Update in Assisted Reproduction
- Hospitals and Health Services Management







Medicine

### Hospital HM Montepríncipe

Country	City
Spain	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



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 throughout Spain.

**Related internship programs:**

- Anaesthesiology and Resuscitation
- Palliative Care



Medicine

### Hospital HM Sanchinarro

Country	City
Spain	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



Medicine

### Policlínico HM Sanchinarro

Country	City
Spain	Madrid

Address: Av. de Manoteras, 10, 28050, Madrid

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

**Related internship programs:**

- Gynecological Care for Midwives
- Nursing in the Digestive Tract Department

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.



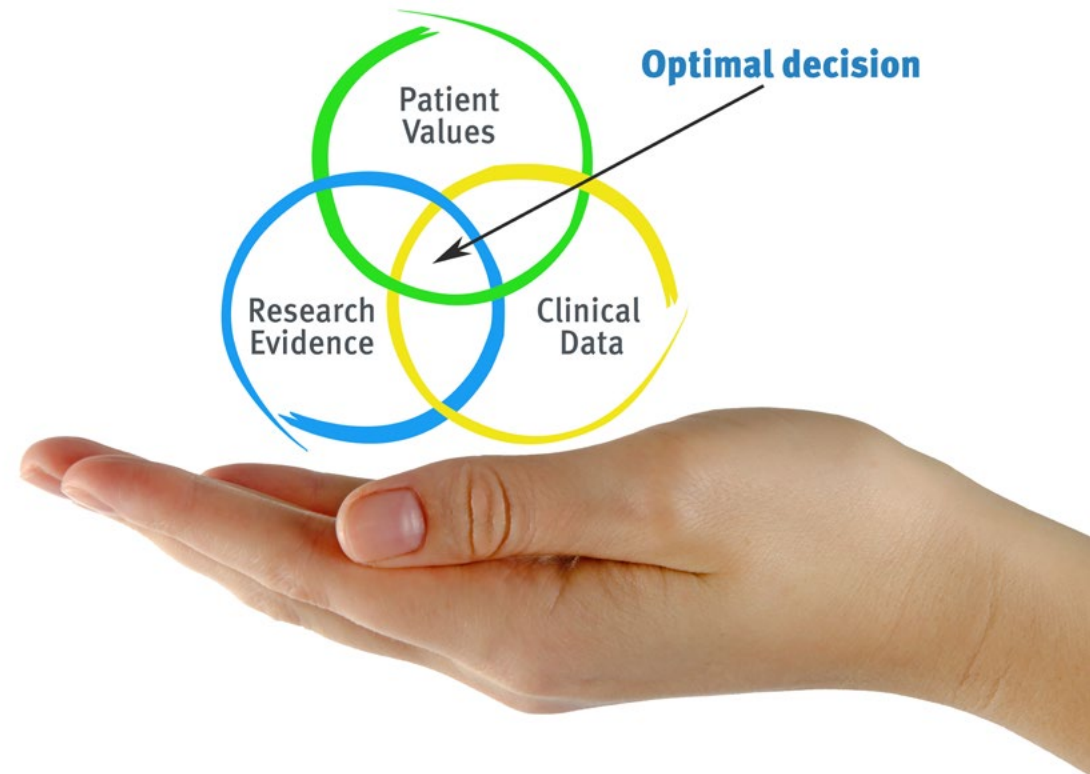
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*Discover Relearning, a system that abandons conventional linear learning, to take you through cyclical teaching systems: a way of learning that has proven to be extremely effective, especially in subjects that require memorization"*

## 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. 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.



## 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.







# 10 Certificate

The Hybrid Professional Master's Degree in Pediatric Neurology and Neurodevelopment guarantees students, in addition to the most rigorous and up-to-date education, access to a Hybrid Professional Master's Degree issued by TECH Technological University.



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

This **Hybrid Professional Master's Degree in Neurology and Neurodevelopment** contains the most complete and up-to-date program on the professional and academic field.

After the student has passed the assessments, they will receive their corresponding Hybrid Professional Master's Degree diploma issued by TECH Technological University via tracked delivery\*.

In addition to the certificate, students will be able to obtain an academic transcript, as well as a diploma outlining the contents of the program. In order to do so, students should contact their academic advisor, who will provide them with all the necessary information.

Title: **Hybrid Professional Master's Degree in Neurology and Neurodevelopment**

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

Duration: **12 months**

Certificate: **TECH Technological University**

Teaching Hours: **1,620 hours.**







## Hybrid Professional Master's Degree

Pediatric Neurology  
and Neurodevelopment

Course Modality: Hybrid (Online + Clinical Internship)

Duration: 12 months

Certificate: TECH Technological University

Teaching Hours: 1,620 h.

# Hybrid Professional Master's Degree

Pediatric Neurology  
and Neurodevelopment