

# Postgraduate Diploma

Malformations, Chromosomal  
Alterations and Neurosurgical  
Pathology in Pediatric Neurology





## Postgraduate Diploma

### Malformations, Chromosomal Alterations and Neurosurgical Pathology in Pediatric Neurology

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

Website: [www.techtute.com/pk/medicine/postgraduate-diploma/postgraduate-diploma-malformations-chromosomal-alterations-neurosurgical-pathology-pediatric-neurology](http://www.techtute.com/pk/medicine/postgraduate-diploma/postgraduate-diploma-malformations-chromosomal-alterations-neurosurgical-pathology-pediatric-neurology)

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# 01

# Introduction

Pediatric Neurology and Neurodevelopment as a specific training area within Pediatrics has become a spearhead in the modern development of this specialty. At present the body of knowledge in Neuropediatrics is in a state of exponential growth in terms of care, teaching and research.

The rise of assisted reproduction and the improvement of neonatal care techniques lead to a higher rate of multiple and premature births with increased survival rates.





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*The Postgraduate Diploma in Malformations, Chromosomal Alterations, and Neurosurgical Pathology in Pediatric Neurology contains the most complete and updated scientific program on the market”*



General pediatricians cannot encompass the complexity of all pediatric subspecialties. As they progress in their development, each one of them acquires a specific body and entity to become its own specialty. In addition, the particularities of child development and its variability according to age and other factors do not allow neurologists for adults to cope with the existing demand.

All this, together with the great diversity and complexity of neurological disorders in childhood, means that more and more neuropediatric units are needed and the demand for highly trained professionals in this area is increasing.

The weight of neuropediatrics within general pediatrics almost exceeds 25% of the overall demand in specialized care units in our country. This figure, together with the significant increase in overall pediatric demand and despite the current birth rate, suggests a significant increase in the coming years.

More and more authors are reporting an increase in the diagnosis of various neurological pathologies typical of childhood, such as disorders within the autism spectrum, learning disabilities, and even neoplasms affecting the central nervous system. This is leading to the development of units structured on the basis of care processes oriented towards specific pathologies and therefore to a need for extremely high need specialization.

In many pediatric neurology units in our environment, subspecialties are being created in which professionals are monographically dedicated to an area within neuropediatrics. There is a certain tendency to assimilate to the adult neurology model. There are units for Learning Disorders, Developmental Disorders, Movement Disorders, Headaches...

The average age of specialists in Neuropediatrics in our country also deserves to be taken into account, since in the coming years many of the entrepreneurs in this area of specialization are expected to reach retirement age.

The **Postgraduate Diploma in Malformations, Chromosomal Alterations, and Neurosurgical Pathology in Pediatric Neurology** contains the most complete and updated scientific program on the market. The most important features of the program include:

- Clinical cases presented by experts in the different specialties.. The graphic, schematic, and eminently practical contents with which they are created provide scientific and practical information on the disciplines that are essential for professional practice.
- News on Malformations, Chromosomal Alterations, and Neurosurgical Pathology in Pediatric Neurology.
- Algorithm-based interactive learning system for decision-making in the presented clinical situations.
- With a special emphasis on evidence-based medicine and research methodologies in Malformations, Chromosomal Disorders and Pediatric Neurosurgery.
- 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.



*Increase your skills in  
Malformations, Chromosomal  
Alterations and Neurosurgical  
Pathology in Pediatric  
Neurology.*

“

*This Postgraduate Diploma may be the best investment you can make in the selection of a refresher program for two reasons: in addition to updating your knowledge in Malformations, Chromosomal Alterations, and Neurosurgical Pathology in Pediatric Neurology, you will obtain a Postgraduate Diploma from TECH - Technological University"*

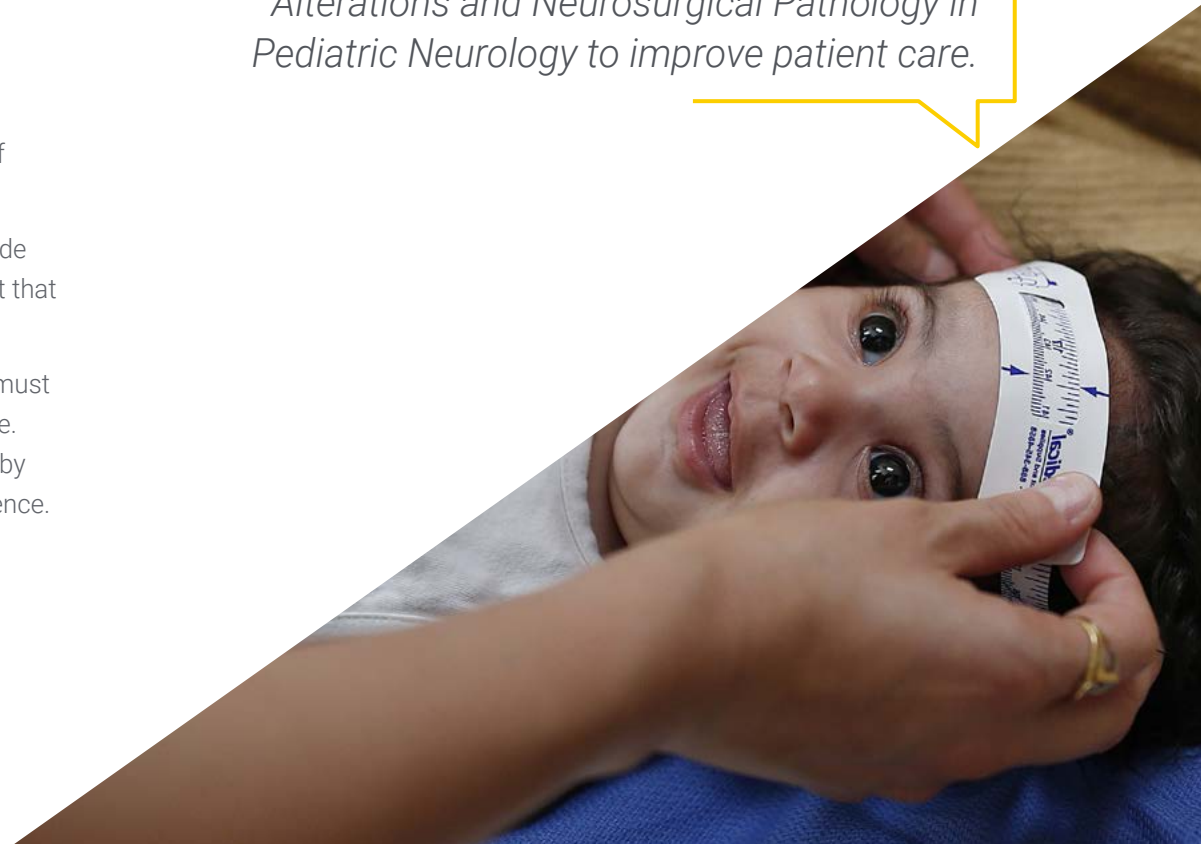
Forming part of the teaching staff is a group of professionals in the world of neuropediatric, who bring to this course their work experience, as well as a group of renowned specialists, recognised by esteemed scientific communities.

The multimedia content developed with the latest educational technology will provide the professional with situated and contextual learning, i.e., a simulated environment that will provide immersive training program to train in real situations.

This program is designed around Problem Based Learning, whereby the physician must try to solve the different professional practice situations that arise during the course. This will be done with the help of an innovative interactive video system developed by renowned experts in the field of pediatric neurology with extensive teaching experience.

*Increase your confidence in decision making by updating your knowledge through this Postgraduate Diploma in Malformations, Chromosomal Alterations, and Neurosurgical Pathology in Pediatric Neurology.*

*Don't miss the opportunity to update your knowledge in Malformations, Chromosomal Alterations and Neurosurgical Pathology in Pediatric Neurology to improve patient care.*



02

# Objectives

The main objective of the program is the development of theoretical and practical learning, so that the physician can master in a practical and rigorous way the study of Malformations, Chromosomal Alterations, and Neurosurgical Pathology in Pediatric Neurology.





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*This refresher program will generate a sense of security in the performance of the physician's praxis, which will help you grow personally and professionally"*



### General Objective

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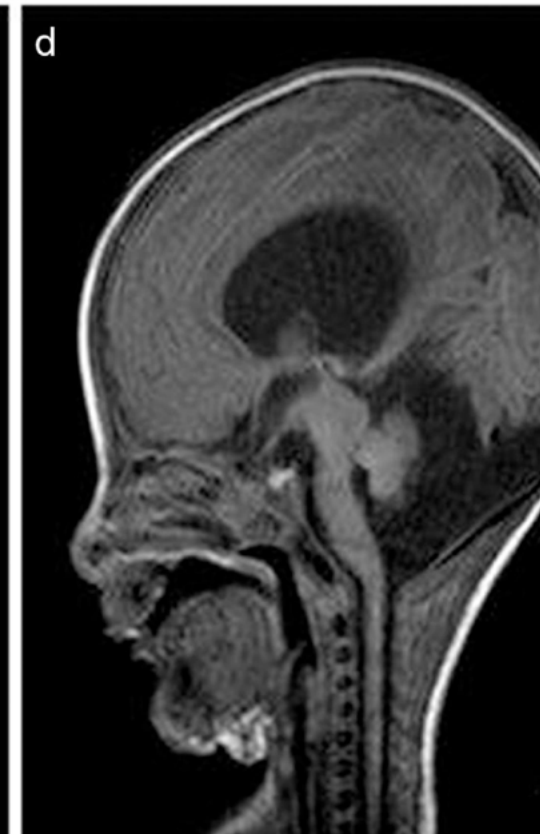
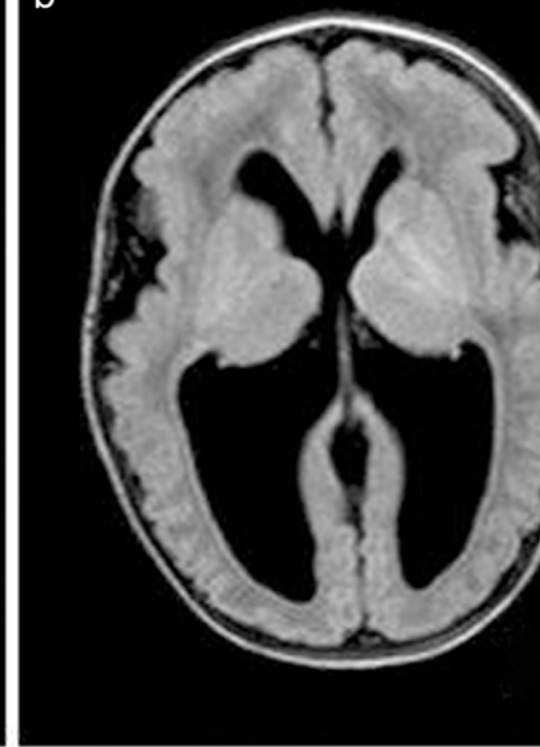
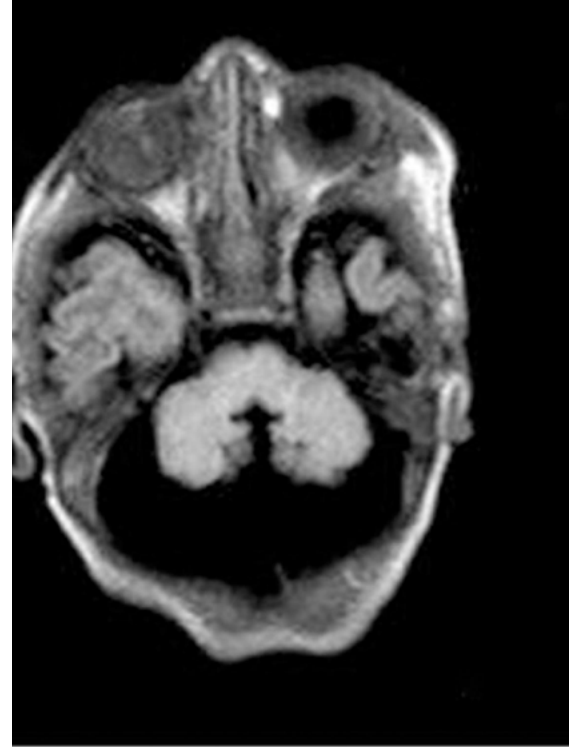
- ♦ Update the specialist's knowledge in the different syndromic disorders of this discipline, through evidencebased medicine.
- ♦ Promote work strategies based on a comprehensive approach and multidisciplinary care in the patient's social environment that become a reference model for achieving excellence in care
- ♦ Encourage the learning of technical skills and abilities, through a powerful audiovisual system, and the possibility of development through online workshops for simulation and/or specific specialization
- ♦ Encourage professional stimulation through continued specialization and research



### Specific Objectives

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- ♦ Perform a correct anamnesis in pediatric neurology.
- ♦ Explain the procedure for neurological examination of newborns and infants.
- ♦ Define the correct neuropsychological examination for school children.
- ♦ Apply neurological assessment scales.
- ♦ Explain how to perform psychomotor developmental assessment in a thorough and rigorous manner.
- ♦ Identify warning signs in the evaluation of psychomotor development.
- ♦ Define the complementary explorations to be applied in prenatal diagnosis.
- ♦ Explain the usefulness of genetic studies and biochemical studies.



- Describe the application of diagnostic imaging in neurodevelopmental assessment and neuropathology.
- Explain the use of neurophysiological studies in the diagnosis and evaluation in neuropsychiatry.
- Describe the execution and evaluation of the electroencephalogram.
- Explain the application of visual, truncal and somatosensory evoked potentials in neuropsychiatry.
- Classification of the Primary Tumors of the Nervous System.
- Explain the treatment of Primary Tumors of the Nervous System.

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*Take the opportunity and take the step to get up to date on the latest developments in Malformations, Chromosomal Alterations and Neurosurgical Pathology in Pediatric Neurology”*



03

# Course Management

This program includes in its teaching staff health professionals of recognized prestige, who belong to the field of pediatric neurology and who pour into this specialization the experience of their work.

In addition involved, renowned specialists, members of prestigious national and international scientific communities, are in designing and preparing the program.







“

*Learn from leading professionals, the latest Advances in Malformations, Chromosomal Alterations and Neurosurgical Pathology Pediatric Neurology"*



## Management



### Dr. Fernández Fernández, Manuel Antonio

- Degree in Medicine and Surgery
- Pediatrician.
- Medical Specialist in Child Neurology
- Director of the Andalusian Institute of Pediatric Neurology. Sevilla, España
- Accreditation in Neuropediatrics by the Spanish Society of Pediatric Neurology (SENEP).
- Master's Degree in Healthcare Services Management and Planning. CTO Business School
- Professional 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
- Master's Degree in Attention Deficit and/or Hyperactivity Disorder from Pablo de Olavide University.
- Master's Degree in Autism Spectrum Disorders from the University of La Rioja
- Expert in Attention Deficit and/or Hyperactivity Disorder throughout life from the University of Alcalá de Henares.
- Advisor to the Institute for Professional Excellence
- European Cum Laude Forum Advisor
- IACAPAP Child and Adolescent Mental Health Manual Reviewer
- Coordinator of the ADHD group of the SEMA (Spanish Society of Adolescent Medicine).
- External Expert Evaluator of the Andalusian Health Quality Agency (ACSA).
- Expert Evaluator of research projects of the Andalusian Ministry of Health.
- Expert in evaluation and research programs of the European Commission.

## Management



### Dr. Fernández Jaén, Alberto

- Degree in Medicine and Surgery
- Specialist in Child Neurology
- CADE Medical Director
- Head of the Child Neurology Department
- Quiron University Hospital, Madrid

## Professors

### Dr. Montserrat Tellez

- ♦ Pediatric Neurologist
- ♦ La Fe University Hospital Valencia

### Dr. Gonzalo Ros Cervera

- ♦ Neuropediatrician
- ♦ IMED Hospital in Valencia

04

# Structure and Content

The structure of the contents has been designed by a team of professionals knowledgeable about the implications of specialization in daily medical practice, aware of the current relevance of specialization to be able to act before the pediatric patient with neurological pathology and committed to quality teaching through new educational technologies.





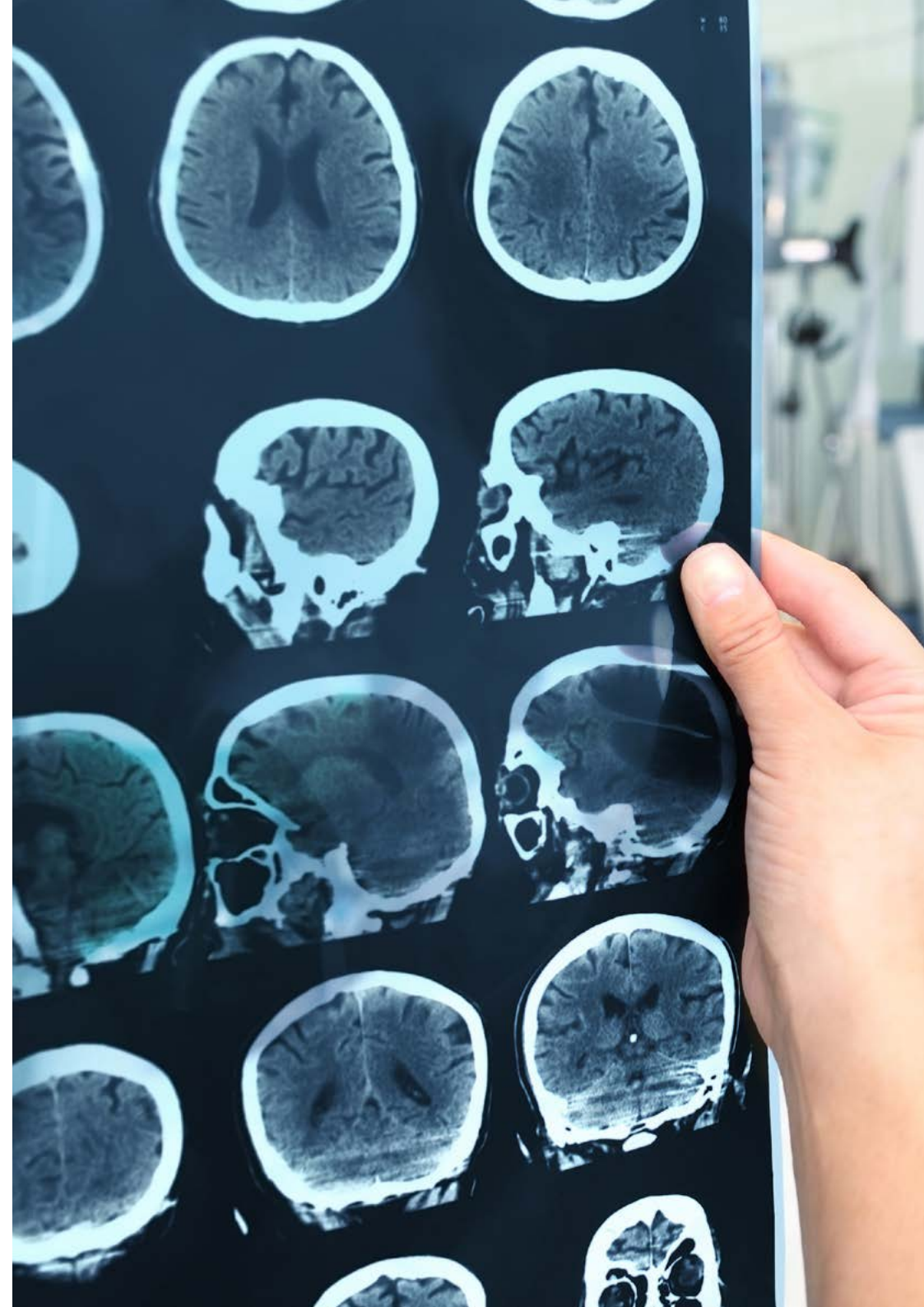
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## Module 1. Advances in Prenatal and Neonatal Neurology

- 1.1. Prenatal Central Nervous System Infections.
  - 1.1.1. Introduction.
  - 1.1.2. General Pathogenic Aspects.
  - 1.1.3. Congenital Viral Infections.
    - 1.1.3.1. Cytomegalovirus.
    - 1.1.3.2. Rubella.
    - 1.1.3.3. Herpes.
  - 1.1.4. Bacterial Congenital Infections.
    - 1.1.4.1. Syphilis.
    - 1.1.4.2. Listeria.
    - 1.1.4.3. Lyme Disease.
  - 1.1.5. Congenital Infections due to Parasites.
    - 1.1.5.1. Toxoplasma.
  - 1.1.6. Other Infections.
- 1.2. Malformations.
  - 1.2.1. Introduction.
  - 1.2.2. The Embryonic Process and its Disorders.
  - 1.2.3. Main CNS Abnormalities.
    - 1.2.3.1. Dorsal Induction Abnormalities.
    - 1.2.3.2. Ventral Induction Abnormalities.
    - 1.2.3.3. Midline Alterations.
    - 1.2.3.4. Cell Proliferation-Differentiation Abnormalities.
    - 1.2.3.5. Neuronal Migration Abnormalities.
    - 1.2.3.6. Abnormalities of the Posterior Fossa Structure.
  - 1.2.4. Embryopathies and Fetopathies.
- 1.3. Perinatal Trauma.
  - 1.3.1. Perinatal Neurological Trauma.
  - 1.3.2. Hypoxic-Ischemic Encephalopathy.
    - 1.3.2.1. Concept, Classification and Pathophysiology.
    - 1.3.2.2. Detection, Management and Prognosis.
    - 1.3.2.3. Newborn Intracranial Hemorrhage.







- 1.3.2.4. Germinal Matrix Hemorrhage-Intraventricular Hemorrhage.
- 1.3.2.5. Periventricular Hemorrhagic Infarction.
- 1.3.2.6. Cerebellar Hemorrhage.
- 1.3.2.7. Supratentorial Hemorrhage.
- 1.4. Neonatal Metabolic Disorders with Neurological Effects.
  - 1.4.1. Introduction.
  - 1.4.2. Neonatal Screening for Inborn Errors of Metabolism.
  - 1.4.3. Diagnosis of Metabolic Disease in the Neonatal Period.
  - 1.4.4. Neonatal Metabolic Disease with Seizures.
  - 1.4.5. Neonatal Metabolic Disease with Neurological Deterioration.
  - 1.4.6. Neonatal Metabolic Disease with Hypotonia.
  - 1.4.7. Neonatal Metabolic Disease with Dysmorphias.
  - 1.4.8. Neonatal Metabolic Disease with Heart Disease.
  - 1.4.9. Neonatal Metabolic Disease with Hepatic Symptoms.
- 1.5. Neonatal Seizures.
  - 1.5.1. Introduction to Neonatal Crises.
  - 1.5.2. Etiology and Physiopathology.
  - 1.5.3. Definition and Characteristics of Neonatal Crises.
  - 1.5.4. Classification of Neonatal Crises.
  - 1.5.5. Clinical Manifestations
  - 1.5.6. Diagnosis of Neonatal Crises.
  - 1.5.7. Treatment of Neonatal Crises.
  - 1.5.8. Prognosis of Neonatal Crises.
- 1.6. Neonatal Intracranial Infections.
- 1.7. Newborns at High Neurological Risk.
  - 1.7.1. Concept.
  - 1.7.2. Causes.
  - 1.7.3. Detection.
  - 1.7.4. Follow up

## Module 2. Update on Neurosurgical Pathology in Pediatric Neurology

- 2.1. Supratentorial CNS Tumors.
- 2.2. CNS Infratentorial and Spinal Tumors.
- 2.3. Non-Embryonal Brain Tumors in Pediatric and Adolescent Patients.
- 2.4. Neuropsychological Assessment and Rehabilitation in Children with CNS Tumors
- 2.5. Non-Oncological Space Occupying Processes.
  - 2.5.1. Concept.
  - 2.5.2. Classification.
  - 2.5.3. Clinical Manifestations
  - 2.5.4. Diagnosis.
  - 2.5.5. Treatment.
- 2.6. Infantile Hydrocephalus.
  - 2.6.1. Concept and Epidemiology.
  - 2.6.2. Etiology and Physiopathology.
  - 2.6.3. Classification.
  - 2.6.4. Clinical Manifestations
  - 2.6.5. Diagnosis.
  - 2.6.6. Treatment.
- 2.7. Childhood Cerebrovascular Disease
  - 2.7.1. Concept and Epidemiology.
  - 2.7.2. Etiology and Physiopathology.
  - 2.7.3. Classification.
  - 2.7.4. Clinical Manifestations
  - 2.7.5. Diagnosis.
  - 2.7.6. Treatment.



### Module 3. Malformations, Chromosomal Alterations and Other Genetic Alterations of the CNS.

- 3.1. Malformations of the CNS.
  - 3.1.1. Introduction.
  - 3.1.2. Classification.
  - 3.1.3. Dorsal Induction Abnormalities.
  - 3.1.4. Ventral Induction Abnormalities.
  - 3.1.5. Midline Alterations.
  - 3.1.6. Cell Proliferation-Differentiation Abnormalities.
  - 3.1.7. Neuronal Migration Abnormalities.
  - 3.1.8. Abnormalities of the Posterior Fossa Structure.
- 3.2. Most Relevant Chromosomal Alterations in Pediatric Neurology
  - 3.2.1. Introduction.
  - 3.2.2. Classification.
  - 3.2.3. Autosomal Aneuploidies.
  - 3.2.4. Sexual Aneuploidies.
- 3.3. Neurocutaneous Syndromes.
  - 3.3.1. Neurofibromatosis Type I.
  - 3.3.2. Neurofibromatosis Type II.
  - 3.3.3. Tuberous Sclerosis.
  - 3.3.4. Incontinentia Pigmenti.
  - 3.3.5. Sturge-Weber Syndrome.
  - 3.3.6. Other Neurocutaneous Syndromes.
- 3.4. Other Relevant Genetic Syndromes in Pediatric Neurology.
  - 3.4.1. Prader Willi Syndrome.
  - 3.4.2. Angelman Syndrome.
  - 3.4.3. Fragile X Syndrome.
  - 3.4.4. Williams Syndrome.
- 3.5. Clinical Application of Genetic Studies in Neuropediatrics.
  - 3.5.1. Introduction.
  - 3.5.2. Karyotype.
  - 3.5.3. Study of Fragile X.
  - 3.5.4. Subtelomeric FISH Probes.
  - 3.5.5. CGH Array.
  - 3.5.6. Exome.
  - 3.5.7. Sequencing.



*A unique, key, and decisive master's degree experience to boost your professional development"*

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 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 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

In a given situation, what would you do? Throughout the program you will be presented with multiple simulated clinical cases based on real patients, where you will have to investigate, establish hypotheses and, finally, 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 can 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 potential 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 professional medical 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 grasp concepts, but also develop their mental capacity by evaluating real situations and applying their knowledge.
2. The learning process has a clear focus on 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.

Our 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, which represent a real revolution with respect to simply studying and analyzing cases.



*The physician will learn through real cases and by solving 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 we have trained more than 250,000 physicians with unprecedented success, in all clinical specialties regardless of the surgical load. All this in a highly demanding environment, where the students have a strong socio-economic profile and an average age of 43.5 years.

*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 (we learn, unlearn, forget, and re-learn). Therefore, we combine each of these elements concentrically.

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



In this Postgraduate Diploma you will have access to the best educational material, prepared with you in mind:



#### Study Material

After a complex production process, we transform the best content into high-quality educational and audiovisual multimedia. We select the best syllabus and make it available to you. Everything you need to acquire in-depth knowledge of a discipline, from A to Z. Lessons written and chosen by specialists in each of the disciplines.



#### Surgical techniques and clinical procedures on video

We bring you closer to the newest techniques, to the latest scientific advances, to the forefront of nursing news. All this, in first person, with the maximum rigor, explained and detailed for your assimilation and understanding. And best of all, you can watch them as many times as you want.



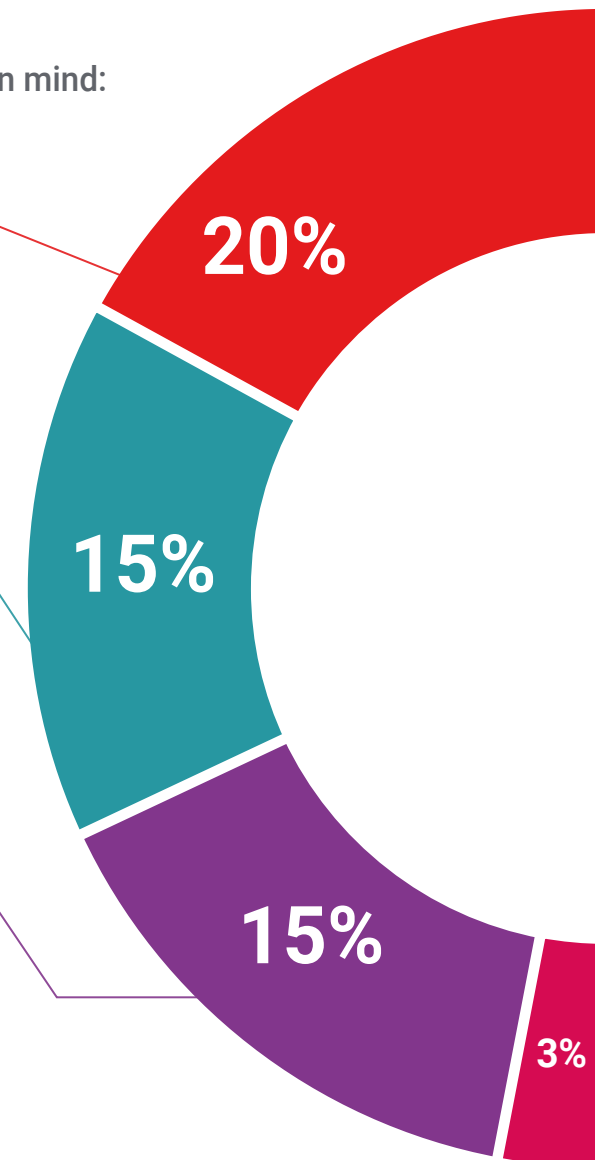
#### Interactive Summaries

We present the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge. This unique training system for presenting multimedia content was awarded by Microsoft as a "European Success Story".

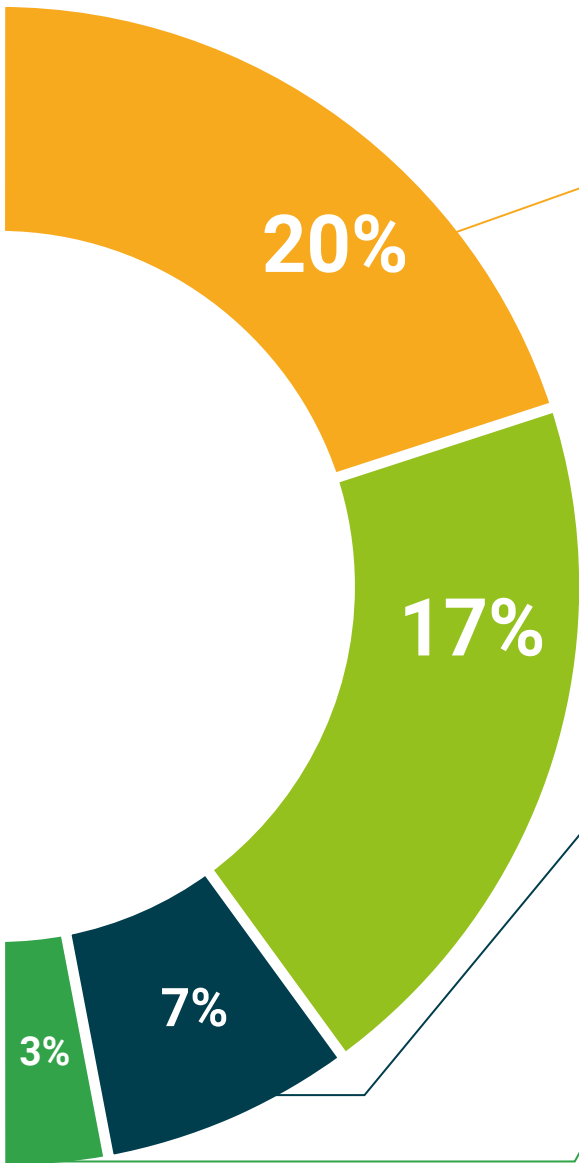


#### Additional Reading

Recent articles, consensus documents, international guides... in our virtual library you will have access to everything you need to complete your training.







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

Through the narratives of expert professionals, it is possible to acquire a high degree of understanding of the most frequent problematic situations. The professional's healthcare practice is not alien to the context in which it takes place. If we want to train ourselves to improve our professional practice, this training must be situated within the context in which it takes place.



#### Testing & Re-testing

We periodically evaluate and re-evaluate your knowledge throughout this program through activities and evaluative exercises.



#### Classes

There is scientific evidence suggesting that observing third-party experts can be useful. Learning from an expert strengthens knowledge and recall, and generates confidence in our future difficult decisions



#### Quick Action Guides

One of the most important functions of our team is to select those contents considered essential and present them in the form of worksheets or quick action guides to facilitate their understanding.



# 06 Certificate

The Postgraduate Diploma in Malformations, Chromosomal Alterations, and Neurosurgical Pathology in Pediatric Neurology guarantees you, in addition to the most accurate and up-to-date specialization, access to a Postgraduate Diploma issued by **TECH Technological University**.



“

*Successfully complete this specialisation and receive your university degree without travel or laborious paperwork”*

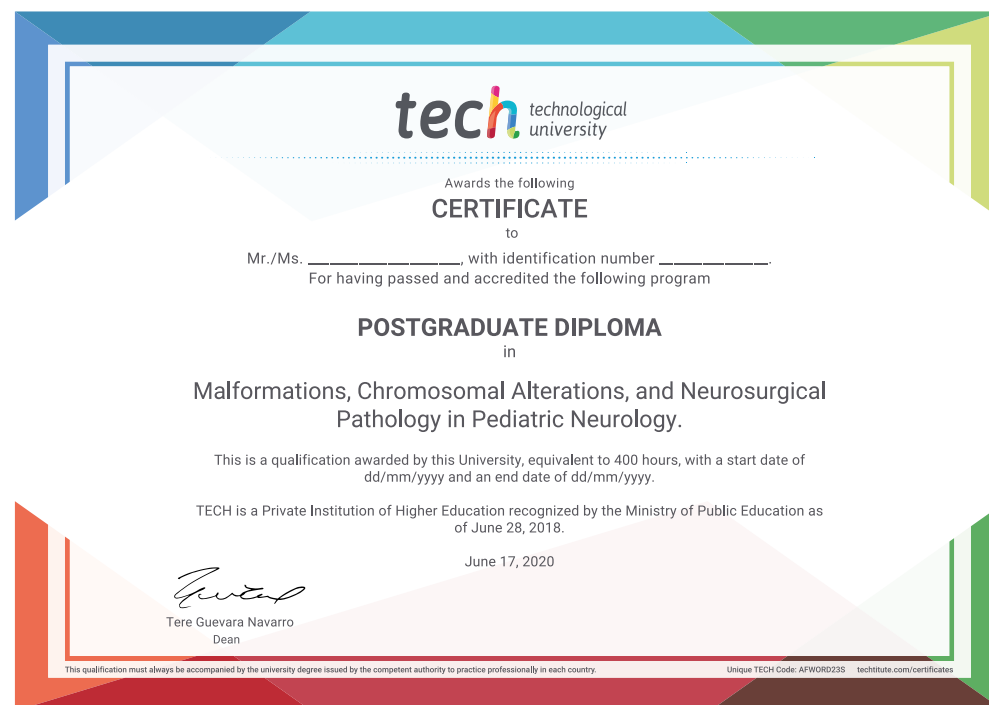
The **Postgraduate Diploma in Malformations, Chromosomal Alterations, and Neurosurgical Pathology in Pediatric Neurology** contains the most complete and updated scientific program on the market.

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

The certificate issued by TECH Technological University will express the qualification obtained in the Postgraduate Diploma, and meets the requirements commonly demanded by labor exchanges, competitive examinations and professional career evaluation committees.

Title: **Postgraduate Diploma in Malformations, Chromosomal Alterations, and Neurosurgical Pathology in Pediatric Neurology.**

Official Number of Hours: **400**



\*Apostille Convention. In the event that the student wishes to have their paper certificate 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

**tech** technological  
university

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