

# Postgraduate Certificate

Basis of Vision Development  
in Pediatric Ophthalmology



## Postgraduate Certificate Basis of Vision Development in Pediatric Ophthalmology

- » Modality: online
- » Duration: 6 weeks
- » Certificate: TECH Global University
- » Credits: 6 ECTS
- » Schedule: at your own pace
- » Exams: online

Website: [www.techtute.com/us/medicine/postgraduate-certificate/basis-vision-development-pediatric-ophthalmology](http://www.techtute.com/us/medicine/postgraduate-certificate/basis-vision-development-pediatric-ophthalmology)

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# 01

# Introduction

Nowadays, the use of electronic devices such as computers, televisions and cell phones, have shown how harmful they can be by the simple fact of causing and accelerating eye diseases in children at an early age. In this way, it is relevant to mention that outdoor activities can prevent different pathologies in aspects of vision and also contributes to the proper development of vision in infants. For this reason, TECH has developed this academic program, which offers the professional an update on identifying the genetic basis of pediatric eye diseases and their clinical relevance. All this, in a 100% online pedagogical format, with classes without fixed schedules and a wide range of multimedia material.



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*TECH has designed this 100% online program through high quality content, developed by a teaching staff with extensive experience in the field of Pediatric Ophthalmology”*

At birth, human beings have not yet fully developed their visual system. Accordingly, the maturation of sight takes a dynamic process that contains some anatomical alterations after birth. Specialists in this area have for many years researched exercises to aid in the care and good practice that will help the child's ocular progression. But today there are more innovative tools that will complement these processes, which must be mastered by the specialist.

The importance of the health and well-being of infants has led to great concern in this sector. For this reason, the practitioner must be at the forefront of the importance of binocular vision development in childhood. In this sense, TECH has designed this program that assures the graduate a complete update in monocular aspects of sensory perception.

Throughout this academic process, the graduate will have the opportunity to focus on methods and tools for visual screening in childhood. All this, through an academic proposal that is distinguished by its high quality multimedia didactic material, and with 24/7 access.

TECH flexible hours and excellence allow professionals to combine their daily work and personal activities with a unique and effective update. With no classroom attendance or classes with fixed schedules, the graduate is faced with an academic proposal that provides a real response to the needs of present and future physicians.

This **Postgraduate Certificate in Basis of Vision Development in Pediatric Ophthalmology** contains the most complete and up-to-date scientific program on the market. The most important features include:

- ♦ Practical case studies presented by experts in Pediatric Ophthalmology
- ♦ 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
- ♦ Practical exercises where the self-assessment process can be carried out to improve learning
- ♦ Its special emphasis on innovative methodologies
- ♦ 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



*This Postgraduate Certificate provides you with multimedia material to support you in achieving your goals of updating your knowledge in Pediatric Ophthalmology, offering you dynamism with the online methodology"*

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*This program gathers the best ways to diagnose and address ocular deviations in children using innovative tools in education”*

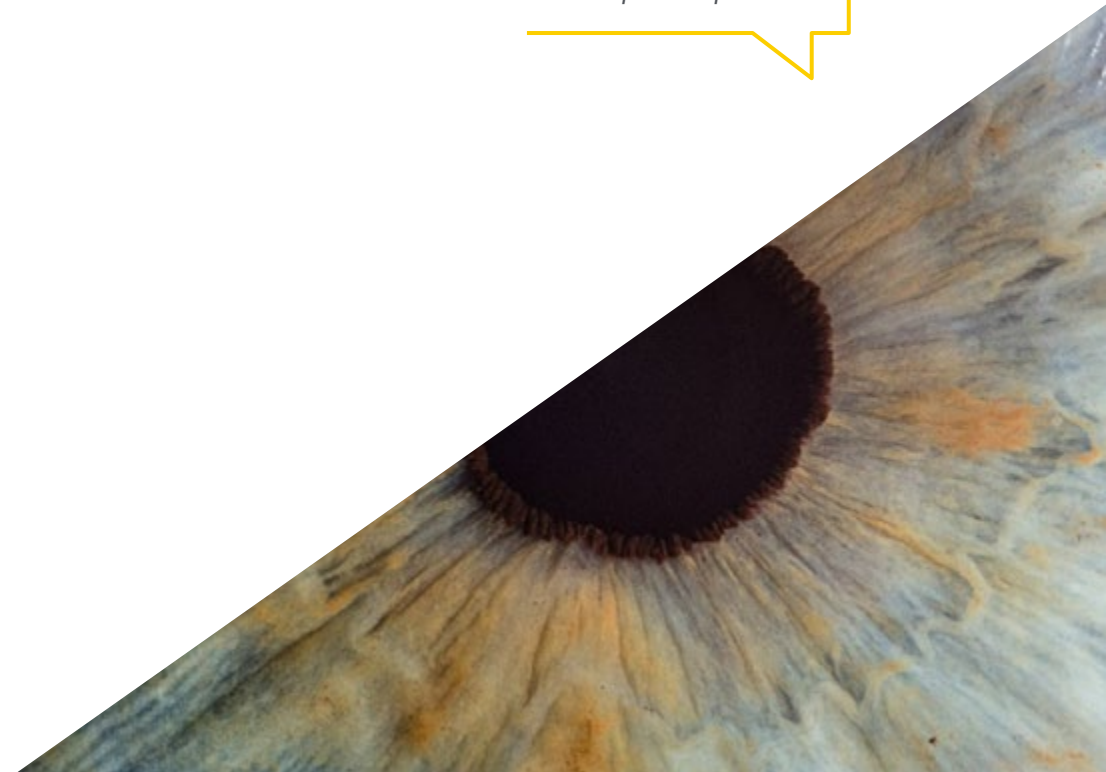
The program’s teaching staff includes professionals from the field who contribute their work experience to this educational program, as well as renowned specialists from leading societies and prestigious universities.

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 education programmed to learn 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 during the academic year. For this purpose, the students will be assisted by an innovative interactive video system created by renowned and experienced experts.

*TECH applies the Relearning method allowing to consolidate the concepts in a simple way, achieving the successful development of the Postgraduate Certificate.*

*The graduate will deepen in vergence and ocular reflexes and expand their knowledge in the physiological processes underlying visual perception.*



# 02

# Objectives

The purpose of this course is to provide the medical professional with the latest knowledge and skills related to the anatomy and function of the sensory structures in the pediatric eye. In this way, they will increase their skills for the management of the main problems during this stage. For this, TECH has developed this academic program, which offers the medical specialist the possibility of combining his update with his other daily activities, since he will not have to be subject to a specific schedule.





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*This Postgraduate Certificate has been elaborated with the purpose of offering the specialist to offer the specialist an exclusive and updated material and updated material in the area of Pediatric Ophthalmology"*



## General Objectives

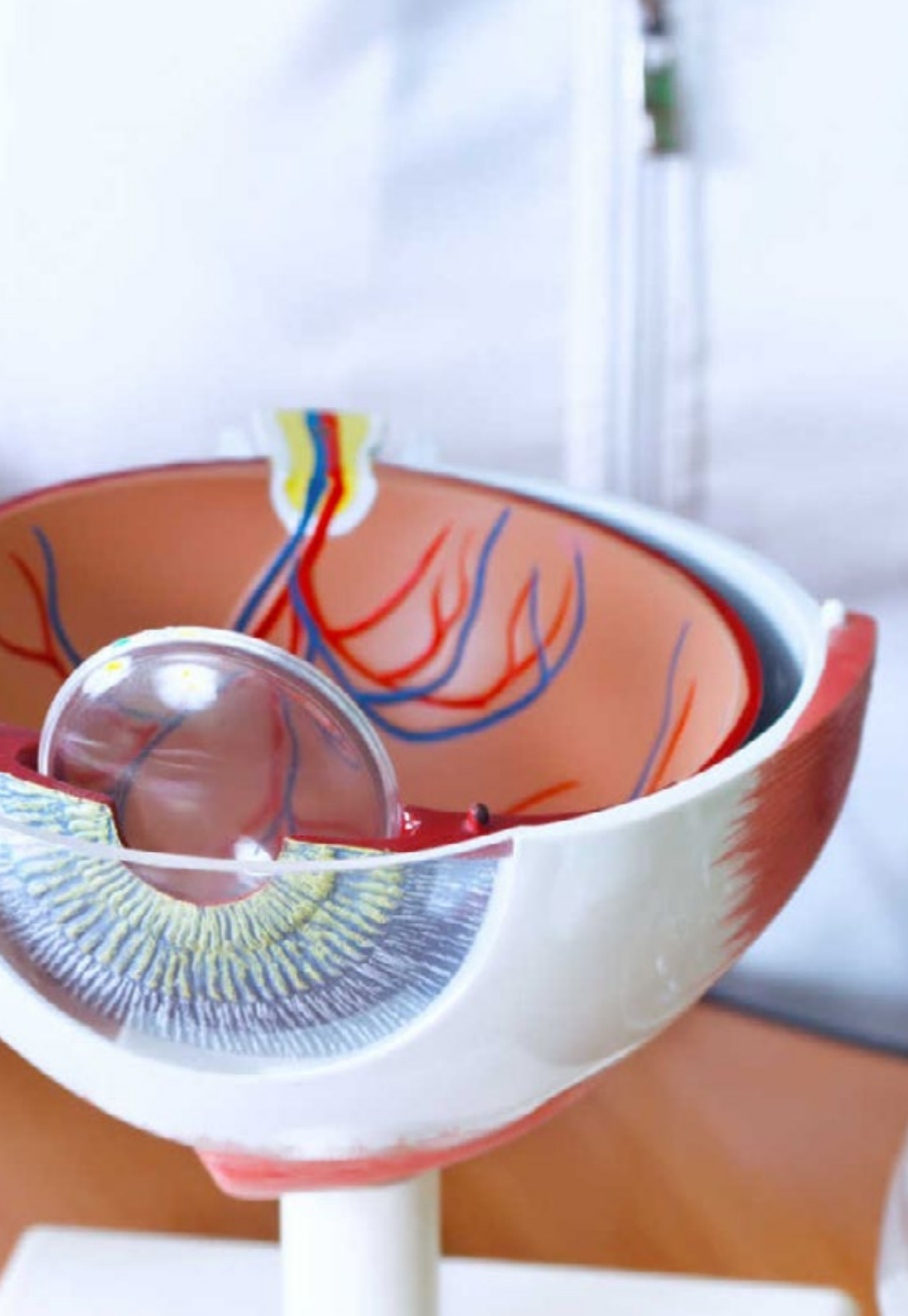
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- ◆ Acquire a thorough and up-to-date knowledge of the diagnosis and treatment of ophthalmologic conditions in children, including neonates and infants
- ◆ Develop a solid understanding of the basics of childhood vision development, covering ocular embryology, related genetics, and the anatomy and physiology of the growing visual system
- ◆ Understand and address ocular anterior segment pathologies, including palpebral, orbital, conjunctival pathology, developmental alterations of the anterior segment, and corneal and ectatic diseases in the pediatric age group
- ◆ Become familiar with the diagnosis and management of pediatric glaucoma, pediatric uveitis, aniridia and other conditions related to the anterior segment
- ◆ Acquire specific knowledge of retinopathy of prematurity, retinoblastoma, hereditary retinal disorders, retinal vascular anomalies, pediatric retinal detachment, and other pediatric retinal conditions
- ◆ Delve into the field of pediatric neuro-ophthalmology, covering topics such as nystagmus, supranuclear motility disorders, congenital optic nerve anomalies and hereditary optic neuropathies



*You will have access to a library of multimedia resources 7 days a week, 24 hours a day*





## Specific Objectives

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- ◆ Understand the key processes of ocular embryology and their influence on visual development
- ◆ Identify the genetic basis of pediatric ocular diseases and their clinical relevance
- ◆ Differentiate between the pediatric and adult visual system, highlighting clinical implications
- ◆ Study the anatomy and function of sensory structures in the pediatric eye.
- ◆ Understand the physiologic processes underlying visual perception in children
- ◆ Analyze the importance of the development of binocular vision in infancy and its clinical consequences
- ◆ Identify the milestones of binocular development and their relationship to three-dimensional vision
- ◆ Study the anatomy and function of the ocular muscles in children and their role in eye movements
- ◆ Recognize ocular motility disorders in pediatric patients and their management
- ◆ Identify visual disturbances in children and their implication in the diagnosis
- ◆ Diagnose and address ocular deviations in children
- ◆ Interpret test results for the diagnosis of visual disorders in children
- ◆ Become familiar with ophthalmic medications used in pediatric treatment and their safe administration
- ◆ Understand the indications and contra-indications of ocular drugs in children
- ◆ Identify the criteria and procedures for visual screening in the pediatric population

03

# Course Management

This program has an outstanding teaching team made up of leading specialists in the field of Pediatric Ophthalmology, with an extensive knowledge of the Basis of Vision Development in Pediatric Ophthalmology. These highly trained experts have extensive knowledge of Pediatric Neurophthalmology and Strabismus, Clinical Management, medical and care management. Therefore, the graduate will be able to face the challenges presented during the development of the academic program.



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*TECH has incorporated to this Postgraduate Certificate a teaching staff with great background and experience in Bases of Vision Development in Pediatric Ophthalmology”*

## Management



### Dr. Sánchez Monroy, Jorge

- ♦ Corresponsable for Pediatric Ophthalmology at Quirónsalud Hospital in Zaragoza
- ♦ Specialist in the Ophthalmology Miguel Servet University Hospital in Zaragoza
- ♦ Master'in in Clinical Ophthalmology from UCJC
- ♦ Degree in Medicine from the University of Zaragoza
- ♦ Expert in Pediatric Neurophthalmology and Strabismus
- ♦ Postgraduate Diploma in Ophthalmology and Vision Sciences

## Professors

### Dr. Narváez Palazón, Carlos

- ♦ Attending Physician in Pediatric Ophthalmology
- ♦ Specialist in Ophthalmology in San Carlos Clinical Hospital
- ♦ Doctor in Ophthalmology
- ♦ Master's Degree in Integration and Clinical Cases Solving from the University of Alcalá, Spain
- ♦ Master's Degree in Clinical Management, Medical and Healthcare Management from the CEU San Pablo University

### Dr. Pueyo Royo, Victoria

- ♦ Specialist in the Pediatric Ophthalmology Miguel Servet University Hospital in Zaragoza
- ♦ Member of the Maternal, Child and Developmental Health Network
- ♦ Professor, Grade of Optics and Optometry, University of Zaragoza
- ♦ Grade in Pediatric Ophthalmology



# 04

# Structure and Content

This Postgraduate Certificate has been designed to provide medical professionals with the highest quality up-to-date training in ocular embryology and genetics in the field of Pediatric Ophthalmology. In this way, competencies in ocular motility disorders in pediatric patients and their management will be strengthened. For this purpose, TECH provides innovative pedagogical tools and the Relearning system, which leads to the consolidation of key concepts in a shorter period of time.





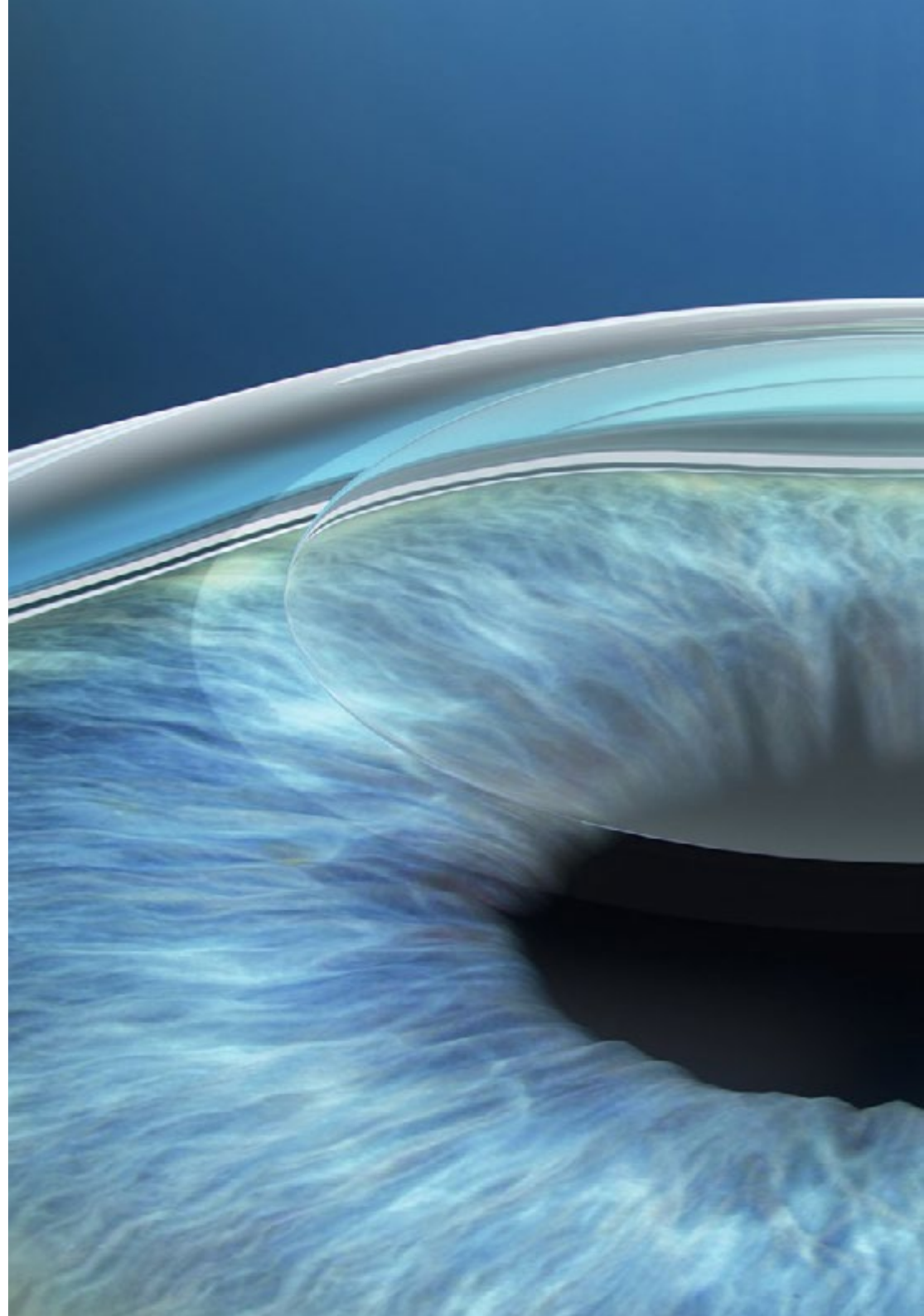


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*A curriculum developed by experts, providing you with the best support with the multiple audiovisual tools that only TECH offers"*

## Module 1. Basis of Vision Development

- 1.1. Ocular embryology and genetics
  - 1.1.1. Embryonic Period
  - 1.1.2. Development of the optic nerve, retina, vitreous, retinal and choroidal vasculature
  - 1.1.3. Development of the lens and anterior pole
  - 1.1.4. Eyelid and Lacrimal System Development
  - 1.1.5. Development of the orbit and extraocular musculature
- 1.2. The growing visual system
  - 1.2.1. Development of functional parameters
  - 1.2.2. Anatomy Development of the Eye
  - 1.2.3. Conclusions
- 1.3. Anatomy and Physiology of sensory perception
  - 1.3.1. Anatomy and Physiology of Retina
  - 1.3.2. Classical visual pathway and extrageniculate pathways
  - 1.3.3. The Visual Cortex. Maturation of Cortex in the Childhood
- 1.4. Binocularity and associated processes
  - 1.4.1. Monocular aspects of sensory perception
  - 1.4.2. Binocular aspects of sensory perception
  - 1.4.3. Sensory adaptations to abnormal visual stimuli
  - 1.4.4. Anatomophysiological basis of amblyopia
- 1.5. Anatomy and Physiology of Ocular Motility
  - 1.5.1. Extraocular Muscles
  - 1.5.2. Cranial Nerves
  - 1.5.3. Ductions and versions. Sherrington and Hering's Laws
  - 1.5.4. Fixation movements, saccadic and slow tracking movements
  - 1.5.5. Vergences and ocular reflexes
  - 1.5.6. Ocular Motility
- 1.6. Exploration of the sensory area
  - 1.6.1. Visual acuity
  - 1.6.2. Fusion
  - 1.6.3. Stereopsis
  - 1.6.4. Study of the visual field in the pediatric age



- 1.7. Exploration of the motor area and ocular deviation
  - 1.7.1. Translations and versions
  - 1.7.2. Convergence
  - 1.7.3. Fusional vergences
  - 1.7.4. Hirschberg and Krimsky
  - 1.7.5. Cover test and its variants, biprism and prismatic adaptation test
  - 1.7.6. Compatibility Study
  - 1.7.7. Synoptophore, Hess and video-oculography screens
- 1.8. Ocular electrophysiology and other tests
  - 1.8.1. Basic Concepts of bioelectrical
  - 1.8.2. Diffuse flash electroretinogram waves
  - 1.8.3. Multifocal electroretinogram and pattern electroretinogram
  - 1.8.4. Visual Evoked Potentials
  - 1.8.5. Electrooculogram
  - 1.8.6. Electromyography of extraocular muscles
- 1.9. Pharmacology Ocular Pediatrics
  - 1.9.1. Special considerations of metabolism and pharmacology in infancy
  - 1.9.2. Ocular pharmacology in childhood: drug groups
  - 1.9.3. Others Routes of Administration
- 1.10. Childhood Visual Screening
  - 1.10.1. Importance and objectives of visual screening
  - 1.10.2. Methods and tools for visual screening in infancy
  - 1.10.3. Implementation and organization of a visual screening program
  - 1.10.4. Evaluation of the effectiveness of the visual screening program

“ *This Postgraduate Certificate contains the most current material on fixation movements, saccadic and slow follow-ups* ”

# 05 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. Gérvas, the clinical case is the annotated presentation of a patient, or group of patients, which becomes a "case", an example or model that illustrates some peculiar clinical component, either because of its teaching power or because of its uniqueness or rarity. It is essential that the case is based on current professional life, trying to recreate the real conditions in the physician's professional practice.

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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.





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

Effective learning ought to be contextual. Therefore, TECH presents real cases in which the expert will guide students, focusing on and solving the different situations: a clear and direct way to achieve the highest degree of understanding.



#### Testing & Retesting

We periodically evaluate and re-evaluate students' knowledge throughout the program, through assessment and self-assessment activities and exercises, so that they can see how they are achieving their goals.



#### Classes

There is scientific evidence on the usefulness of learning by observing experts. The system known as Learning from an Expert strengthens knowledge and memory, and generates confidence in future difficult decisions.



#### Quick Action Guides

TECH offers the most relevant contents of the course in the form of worksheets or quick action guides. A synthetic, practical, and effective way to help students progress in their learning.



06

# Certificate

The Postgraduate Certificate in Basis of Vision Development in Pediatric Ophthalmology guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Certificate issued by TECH Global University.





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

This program will allow you to obtain your **Postgraduate Certificate in Basis of Vision Development in Pediatric Ophthalmology** endorsed by **TECH Global University**, the world's largest online university.

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

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

Title: **Postgraduate Certificate in Basis of Vision Development in Pediatric Ophthalmology**

Modality: **online**

Duration: **6 weeks**

Accreditation: **6 ECTS**





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