

# Postgraduate Certificate

## Visual Anomalies and Measurement Methods



## Postgraduate Certificate Visual Anomalies and Measurement Methods

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

Website: [www.techtute.com/us/medicina/postgraduate-certificate/visual-anomalies-measurement-methods](http://www.techtute.com/us/medicina/postgraduate-certificate/visual-anomalies-measurement-methods)

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# 01

# Introduction

For any medical professional specialized in Ocular Optics, knowing in detail the latest advances related to visual anomalies and their measurement methods is a very important and complex issue, since finding a complete qualification that adapts to their availability and need for up-to-date information makes this task difficult. For this reason, TECH has developed this complete program with which you will be able to get up to date in everything related to lenses, optical systems and aberrometry. All this through a 100% online program with which you will be able to perfectly combine the activity of your practice with this academic experience designed by experts in the sector.



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*TECH provides the medical specialist with a program adapted to the latest developments in Ocular Optics and to their needs for updating”*



In recent years, the field of Ocular Optics has advanced by leaps and bounds, perfecting more and more the techniques of diagnosis of visual anomalies, as well as the methods of correction and treatment of the same. Because of this, specialists in this field must be constantly up-to-date, so that they can always offer their patients the most avant-garde, innovative and effective service.

For this reason, TECH has developed this Postgraduate Certificate in Visual Anomalies and Measurement Methods. This is a convenient and comprehensive program, designed by experts in the sector, with which the student will be able to get up-to-date on everything related to the ocular system, knowing in detail the latest scientific advances in the treatment of the emmetropic and ametropic eye, its causes and the epidemiology of refractive defects. In addition, you will delve into the review of the most advanced methods of ocular refraction, visual quality and acuity measurement.

All this through a 100% online program with which you will be able to perfectly combine the activity of your practice with the academic experience, thanks to its accessibility and the flexible schedule that this university offers. Likewise, all the content will be available from the beginning of the program, from the syllabus to the hours of additional material that the student will find in the virtual classroom and can be downloaded to any device with an Internet connection for access at any time, even after completion of the Postgraduate Certificate.

This **Postgraduate Certificate in Visual Anomalies and Measurement Methods** contains the most complete and up-to-date scientific program on the market. The most important features include:

- ♦ The development of practical cases presented by experts in Ocular Optics
- ♦ 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 self-assessment can be used 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



*The perfect program to get up-to-date in everything related to ocular anatomy from wherever you want and with a 100% personalized schedule adapted to your availability”*

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*You will have 150 hours of additional material in different formats to delve deeper into those aspects of the syllabus that you consider most relevant and interesting”*

The program's teaching staff includes professionals from sector who contribute their work experience to this 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 throughout the program. For this purpose, the student will be assisted by an innovative interactive video system created by renowned and experienced experts.

*The Virtual Classroom will be available any day of the week and 24 hours a day.*

*Master your medical skills related to quality measurement strategies with this Postgraduate Certificate and its practical syllabus.*



# 02 Objectives

Given the high demand in the medical sector for comprehensive and flexible qualifications that allow specialists to keep up-to-date on the advances in their respective fields in a way that is compatible with the activity of their practices, the objective of this Postgraduate Certificate is precisely to provide them with this up-to-date education. Through a program designed by experts in the sector and thanks to the most sophisticated and avant-garde academic tools, the student will be able to know in detail the latest scientific evidence related to Ocular Optics and visual anomalies in less than 150 hours, surpassing with total guarantee their academic expectations.





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*A program designed by experts in Ocular Optics with which you will be able to exceed your most demanding academic objectives in less than 150 hours”*



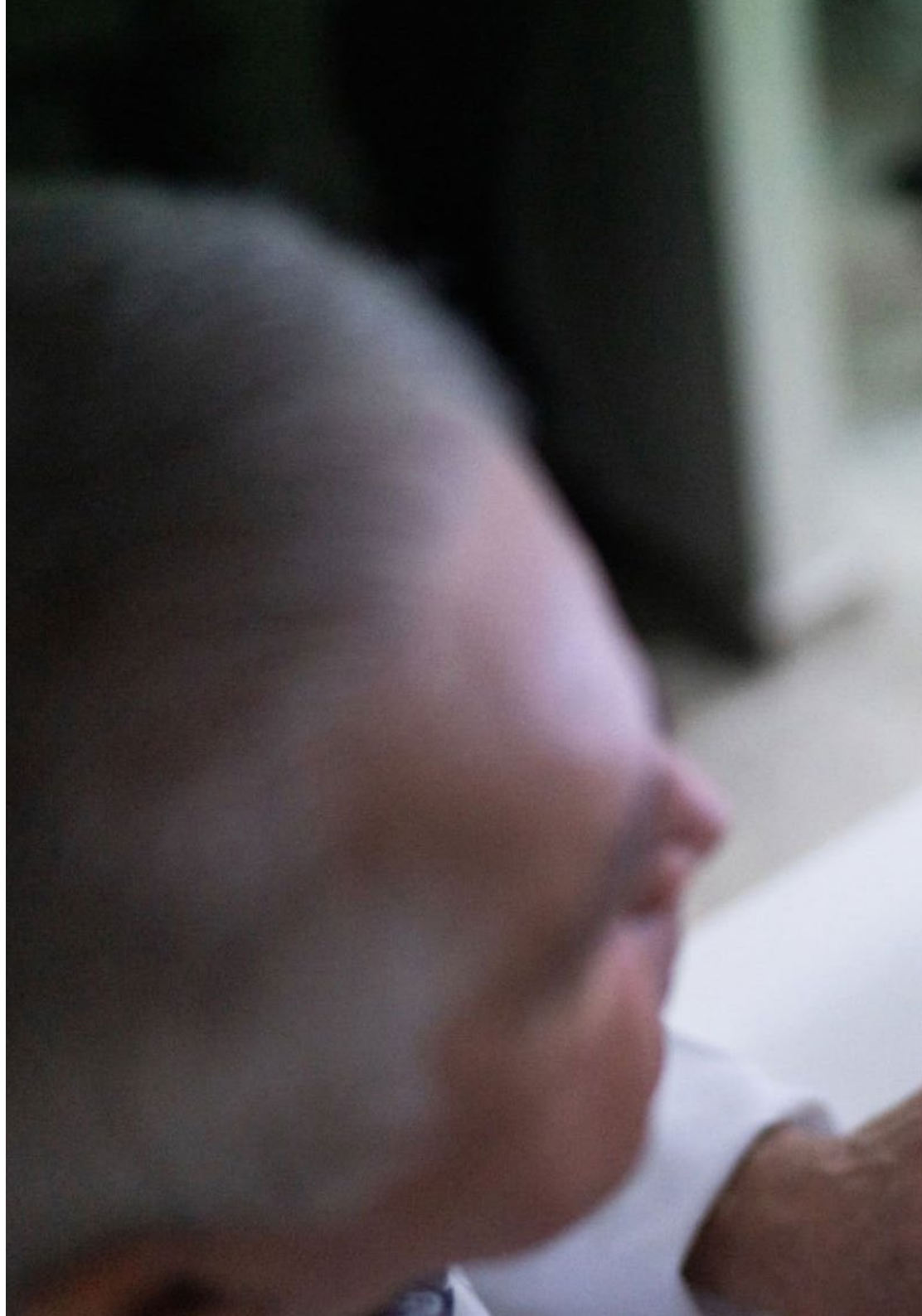
## General Objectives

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- ♦ Provide the specialist with the most complete and up-to-date information related to scientific advances in the field of Ocular Optics
- ♦ Allow the student to perfect their professional skills in the treatment of visual anomalies through the most sophisticated and avant-garde measurement methods

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*You will master the latest advances related to methods of measuring ametropia and visual quality in just 6 weeks”*





## Specific Objectives

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- Know the ocular anatomy
- Describe the ocular optical structures and their measurement
- Know the methods and metrics of visual acuity measurement
- Describe spherical and cylindrical ametropia
- Know the metrics of visual quality measurement
- Present the objective and subjective methods of ocular refraction
- Introduce ultrasonic and optical ocular biometry
- Learn how to use the vector notation of ocular refraction





# 03

## Course Management

In its commitment to offer the most complete and beneficial qualification for the updating of the specialist, TECH has considered it necessary to include in this Postgraduate Certificate a teaching team to guide them during the academic experience and their knowledge update. These are experts in Optometry and Vision Sciences with extensive professional experience in the clinical management of patients with abnormalities related to ocular anatomy. In addition, they are currently working, therefore, they know in detail the most advanced and effective techniques and treatment strategies.



A close-up photograph of a microscope, showing the objective lenses and the coarse and fine adjustment knobs. The knobs have white markings and numbers (1, 2, 3, 4) on them. The background is a soft, out-of-focus light blue.

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*You will have the possibility of requesting personalized tutorials with the teaching team to resolve any doubts about the program or for any questions related to the field”*

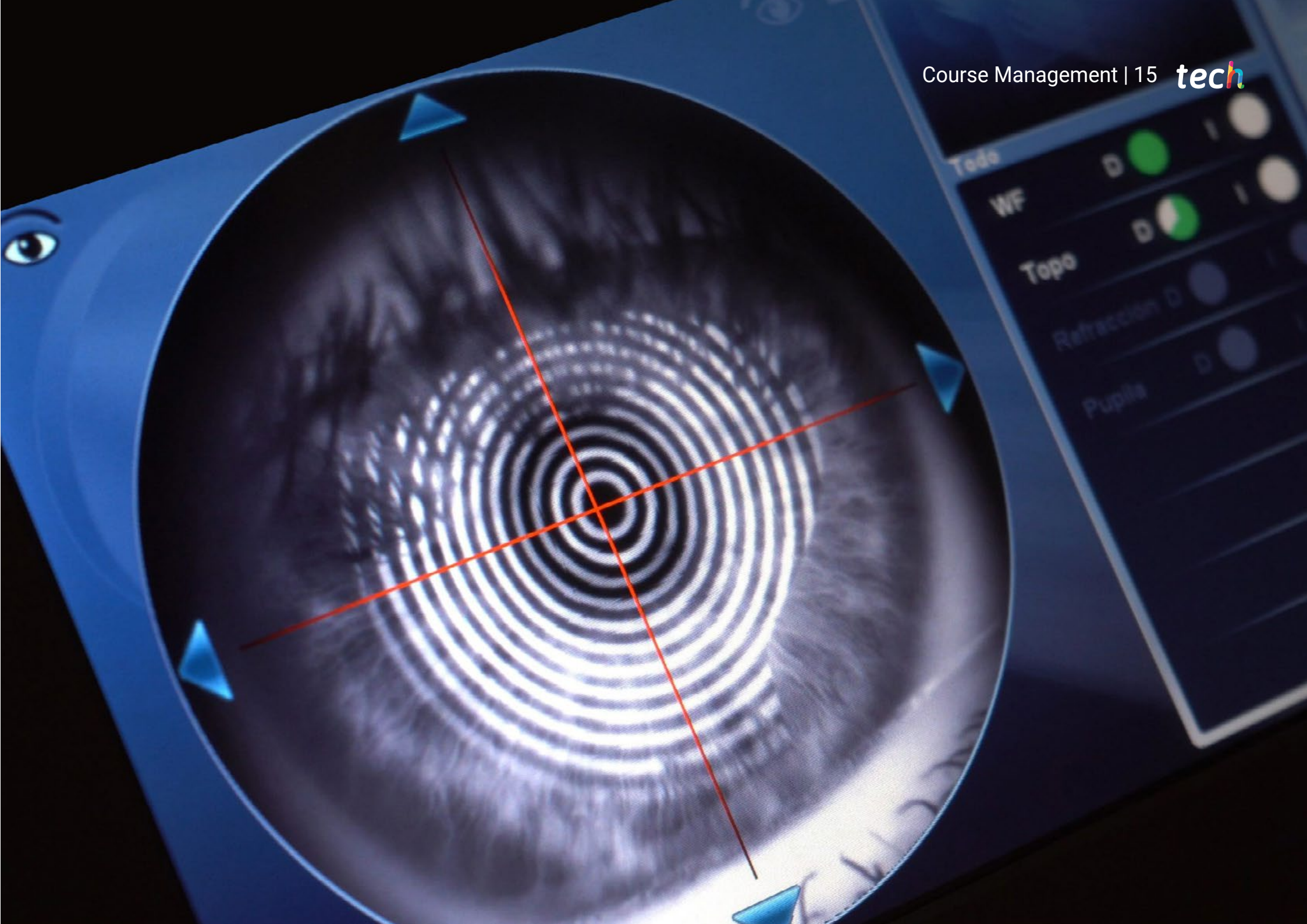


## Management



### **Dr. Calvache Anaya, José Antonio**

- ◆ Optometrist at Clínica Baviera in Palma de Mallorca
- ◆ Professor in courses on Biostatistics, Keratometry and Corneal Topography and Ocular Biometry
- ◆ Degree in Optics and Optometry from the University of Alicante
- ◆ PhD in Optometry and Vision Sciences by the University of Valencia
- ◆ Master's Degree Advanced Optometry and Vision Sciences, University of Valencia
- ◆ Postgraduate Diploma in Statistics Applied to Health Sciences UNED
- ◆ Postgraduate Certificate in Optics and Optometry from the University of Alicante



# 04

## Structure and Content

This Postgraduate Certificate has been designed by the teaching team taking into account the latest scientific advances related to Ocular Optics focused on visual anomalies and their measurement methods. Likewise, the professional who accesses it will find 150 hours of the best theoretical, practical and additional material, including detailed videos, dynamic summaries, research articles and additional readings. Everything you need to get up to date in a comprehensive and 100% online way. Furthermore, the flexibility of its format will allow you to keep your knowledge up-to-date and master your medical skills from wherever you are and at any time of the day.







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*You will be able to delve into the objective and subjective methods of ocular refraction through the best syllabus and the most varied and dynamic additional material”*

## Module 1. Visual Anomalies and Measurement Methods

- 1.1. Ocular Anatomy
  - 1.1.1. The Eyeball
  - 1.1.2. The Cornea
  - 1.1.3. The Crystalline Lens
  - 1.1.4. The Retina
  - 1.1.5. Optic Nerve
  - 1.1.6. Visual Pathway
- 1.2. The Ocular Optical System I
  - 1.2.1. Cornea
    - 1.2.1.1. Simplified Keratometry: SimK
    - 1.2.1.2. Total Corneal Power
  - 1.2.2. Lens
    - 1.2.2.1. Power
  - 1.2.3. Corneal-Crystalline Coupling
    - 1.2.3.1. Principal and Nodal Planes of the Eye
    - 1.2.3.2. Focal and Eye Power
- 1.3. The Ocular Optical System II
  - 1.3.1. Diaphragms and Pupils of the Eye
    - 1.3.1.1. Aperture Diaphragm
    - 1.3.1.2. Entrance and Exit Pupils
    - 1.3.1.3. Accommodation
  - 1.3.2. Remote and Proximity Points
- 1.4. Measurements of Visual Quality
  - 1.4.1. Visual acuity
    - 1.4.1.1. Visual Acuity Measurement Metrics
    - 1.4.1.2. Optotypes
  - 1.4.2. Contrast Vision
  - 1.4.3. Aberrometry
    - 1.4.3.1. Corneal Aberrometry
    - 1.4.3.2. Hartman-Shack Aberrometry
- 1.5. Spherical and Cylindrical Ametropias
  - 1.5.1. Myopia
    - 1.5.1.1. Definition
    - 1.5.1.2. Types
  - 1.5.2. Hyperopia
    - 1.5.2.1. Definition
    - 1.5.2.2. Types
  - 1.5.3. Astigmatism
    - 1.5.3.1. Definition
    - 1.5.3.2. Sturm Interval
    - 1.5.3.3. Types
    - 1.5.3.4. Regular
    - 1.5.3.5. Irregular
  - 1.5.4. Presbyopia
    - 1.5.4.1. Definition
  - 1.5.5. Changes with Age
  - 1.5.6. Distribution of Ametropia in the Population
- 1.6. Ocular Refraction
  - 1.6.1. Objective Methods of Refraction
    - 1.6.1.1. Autorrefractometry
    - 1.6.1.2. Retinoscopy
  - 1.6.2. Subjective Refraction
  - 1.6.3. Cycloplegic Refraction
- 1.7. Topography and Keratometry
  - 1.7.1. The Keratometer
  - 1.7.2. Corneal Topography
    - 1.7.2.1. Topographic Maps
    - 1.7.2.2. Tomography
    - 1.7.2.3. Applications





- 1.8. Ocular Biometry
  - 1.8.1. Ultrasound biometry
  - 1.8.2. Optical biometrics
  - 1.8.3. Applications
- 1.9. Vector Notation of Refraction
  - 1.9.1. Vector of Cylindrical Powers
  - 1.9.2. Applications
    - 1.9.2.1. Contactology
    - 1.9.2.2. Refractive Surgery
- 1.10. Binocular Vision
  - 1.10.1. Accommodation and Convergence
  - 1.10.2. Heterophoria and Strabismus
  - 1.10.3. Fusion and Stereopsis
  - 1.10.4. Binocular Vision Examination Methods

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*The teaching team has selected for this course real clinical cases extracted from their practices, so that you can work on mastering your skills through practice”*

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 Visual Anomalies and Measurement Methods guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Certificate 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 **Postgraduate Certificate in Visual Anomalies and Measurement Methods** contains the most complete and up-to-date scientific program on the market.

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

The diploma issued by **TECH Technological University** will reflect the qualification obtained in the Postgraduate Certificate, and meets the requirements commonly demanded by labor exchanges, competitive examinations, and professional career evaluation committees.

Title: **Postgraduate Certificate in Visual Anomalies and Measurement Methods**

Official N° of Hours: **150 h.**



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



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