Postgraduate Certificate

Anatomy, Physiology, Exploratory and Functional Tests of the Macula, Retina, and Vitreous

tech global university

tech global university

Postgraduate Certificate

Anatomy, Physiology, Exploratory and Functional Tests of the Macula, Retina, and Vitreous

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

Website: www.techtitute.com/us/medicine/postgraduate-certificate/anatomy-physiology-exploratory-functional-test-macula-retina-vitreous

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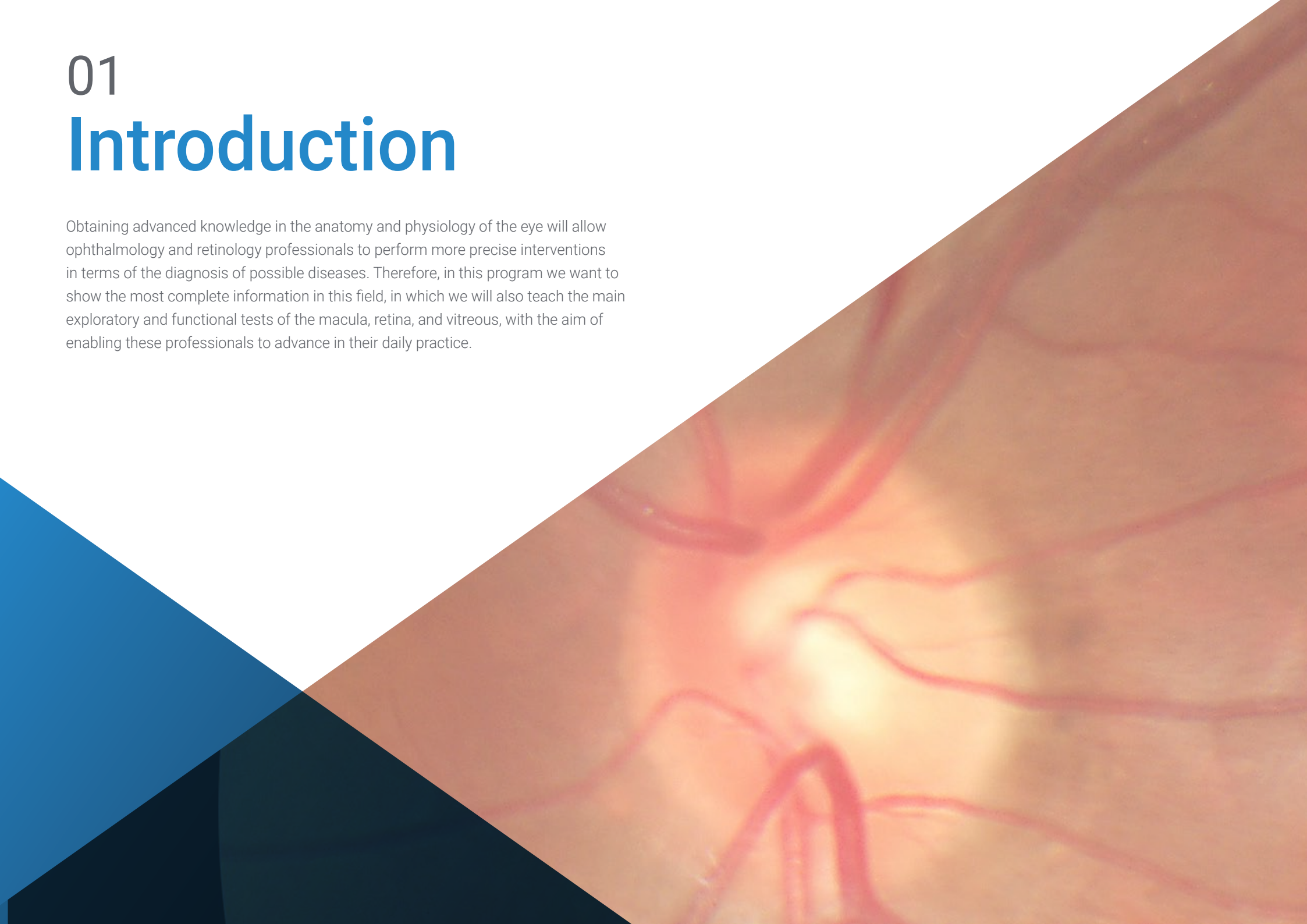
01

Introduction

Obtaining advanced knowledge in the anatomy and physiology of the eye will allow ophthalmology and retinology professionals to perform more precise interventions in terms of the diagnosis of possible diseases. Therefore, in this program we want to show the most complete information in this field, in which we will also teach the main exploratory and functional tests of the macula, retina, and vitreous, with the aim of enabling these professionals to advance in their daily practice.



Ophthalmologists will find in this course the perfect opportunity to increase their training and improve in their daily practice"

The main objective of this course in Anatomy, Physiology, Exploratory and Functional Tests of the Macula, Retina, and Vitreous offered by TECH is to give ophthalmologists and retinologists the opportunity to specialize in this exciting field and learn the main tools they have at their disposal to make a more effective diagnosis in their patients.

Knowledge of the anatomy and physiology of vision is very important for the understanding of diseases and the symptoms they produce. Therefore, this course aims to train professionals in this field, so that they can perform a quality praxis with their patients. For this purpose, we offer a detailed description of the most current exploratory techniques, which will help the student to put these techniques into practice from the knowledge of how they work. In this way, the in-depth development of these techniques will allow the student to handle all the tools that the new digital devices provide to professionals in this field.

The main tests currently used for the study of the macula are covered in detail in this course, from their primary concepts to the detailed analysis of their software programs and the development of all their analysis possibilities, something essential nowadays to be able to treat macular and retinal pathology.

The course has a teaching staff specialized in ocular pathology and surgery, and who contribute both their practical experience in their day to day private practice, as well as their long experience in teaching at national and international level. In addition, it has the advantage of being a 100% online training, so the student can decide from where to study and at what time to do it. This way, you will be able to flexibly self-direct your study hours.

This Postgraduate Certificate in **Anatomy, Physiology, Exploratory and Functional Tests of the Macula, Retina, and Vitreous** has the most complete and updated scientific program in the market. The most important features of the program include:

- The development of clinical cases presented by experts in ocular pathology and surgery.
- 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.
- The presentation of practical workshops on procedures and techniques.
- An algorithm-based interactive learning system for decision-making in the clinical situations presented throughout the course.
- Action protocols and clinical practice guidelines, where the most important novelties in the specialty are disseminated.
- Theoretical lessons, questions to the expert, discussion forums on controversial topics and individual reflection papers.
- Special emphasis on evidence-based medicine and research methodologies.
- The availability of access to the contents from any fixed or portable device with Internet connection.

This course is the best option you can find to increase your knowledge in ocular disease and give a plus to your professional career"

This course is the best investment you can make in a training to update your knowledge in anatomy, physiology, exploratory, and functional tests of the macula, retina, and vitreous"

This 100% online course allow you to study from anywhere in the world. All you need is a computer or mobile device with an internet connection.

Our innovative teaching methodology will allow you to study as if you were dealing with real cases, and therefore increasing your training.

It includes in its teaching staff a team of medical professionals, who pour into this training the experience of their work, in addition to recognized specialists belonging to scientific societies of reference.

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 an immersive training experience designed to train for real-life 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. This will be done with the help of an innovative interactive video system created by renowned experts in pathology of the macula, retina, and vitreous, with extensive teaching experience.

02

Objectives

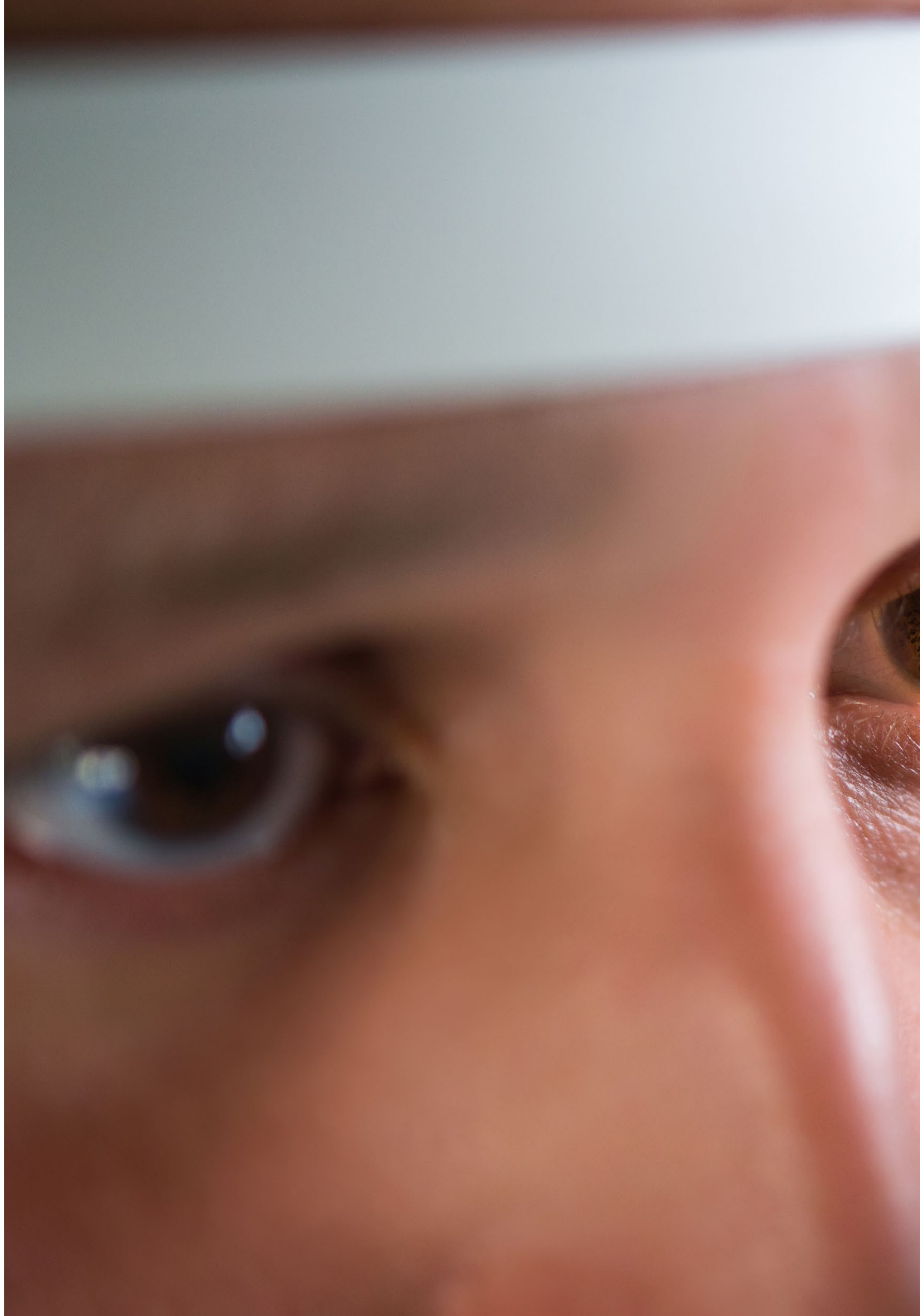
The Course in Anatomy, Physiology, Exploratory and Functional Tests of the Macula, Retina, and Vitreous is oriented to facilitate the performance of the professional dedicated to health with the latest advances and newest treatments in the sector.

This training will create a sense of confidence in daily practice and help you to grow professionally".

General Objectives

- Deepen your knowledge about the anatomy and physiology of the retina, macula, and vitreous..
- Know in detail the physiology of colour vision and its functional tests..
- Become familiar with the latest exploratory techniques such as angiography or OCT, for their application in a clinic..

Our goal is to achieve academic excellence and to help you achieve it too"



Specific Objectives

- Learn about the ophthalmoscope and its examination lenses.
- Understand the slit lamp and its exploratory alternatives.
- Deepen knowledge of the anatomy of the retina, macula, and vitreous in all its possibilities.
- Enhance knowledge of the ageing of the vitreous and the pathology it can cause.
- An in-depth study of the physiology of vision and colour vision.
- Knowledge of the optical pathway and its associated pathology.
- Further explore the visual cortex.
- Deepen the knowledge of electrophysiological tests that explore visual function.
- Know retinography in all its modalities, fluorescein angiography, and indocyanine green angiography.
- Deepen the understanding of OCT and angioOCT.
- Further in the study of autofluorescence.
- In-depth study of ocular ultrasound

03

Course Management

The creation of the materials has been carried out by a team of leading professionals in ophthalmology, who perform their professional activity in the main hospitals in the country, transferring to the program the experience gained in their jobs throughout their careers.

The best professionals in this area have joined forces to offer you the most specialised and up-to-date knowledge in the field"

International Guest Director

Dr. Gennady Landa is a leading vitreoretinal specialist, recognized for his skill in the surgical and medical treatment of a wide range of diseases affecting the back of the eye. In fact, his expertise encompasses conditions such as Macular Degeneration, Diabetic Retinopathy, Retinal Detachment and various Hereditary and Inflammatory Retinal Diseases. With a particular focus on macular, retinal and vitreous surgery, he has contributed to the advancement of treatments such as laser surgery, intraocular injections and vitrectomy techniques.

Throughout his career, he has played key roles in some of the most prestigious ophthalmological institutions in the United States. In this way, he has been Vice Chair of the Ophthalmology Clinic at Mount Sinai Hospital, as well as Director of the Retina Department at the New York Eye and Ear Hospital (NYEEI), one of the oldest and most renowned ophthalmology hospitals in the country. At the same center, he has also held the positions of Associate Director of the Vitreoretinal Fellowship and Medical Director of the Tribeca Office.

He has also been dedicated to exploring new ways of treatment and prevention of Age-Related Macular Degeneration and other Ocular Diseases. He has published more than 35 scientific articles in peer-reviewed journals and chapters in specialized books, contributing to the development of new retinal imaging techniques.

Internationally, he has been recognized for his contributions to Ophthalmology, receiving a prestigious Honor Award from the American Society of Retina Specialists. This recognition has underscored his leadership in the field of retina, both in clinical practice and research. Likewise, his participation in international congresses and scientific meetings has consolidated his reputation as a globally renowned expert.

Dr. Landa, Gennady

- Vice Chair of the Ophthalmology Clinic at Mount Sinai Hospital, New York, United States
- Director of the Retina Service at the New York Eye and Ear Hospital (NYEEI)
- Associate Director of the Vitreoretinal Fellowship at the New York Eye and Ear Hospital (NYEEI)
- Medical Director of the Tribeca Office at New York Eye and Ear Hospital (NYEEI)
- Retina Specialist at the New York Eye and Ear Hospital (NYEEI)
- Doctor of Medicine from the Israel Technion Institute of Technology
- Honorary Award from the American Society of Retinal Specialists

Thanks to TECH, you will be able to learn with the best professionals in the world"

Management

Dr. Armadá Maresca, Félix

- Head of Ophthalmology Service, La Paz University Hospital, Madrid.
- Doctor of Medicine. Autonomous University of Madrid.
- Degree in Medicine. Alcalá de Henares University.
- Director of the Department of Ophthalmology at the San Francisco de Asís University Hospital in Madrid.
- Certified Ophthalmic Photographer, University of Wisconsin, Madison, USA.
- The Chalfont Project, Chalfont St Giles, HP8 4XU United Kingdom. Year 2002
- ESADE - Course in Strategic Management of Clinical Services. 2011.
- IESE - VISIONA course, clinical management in ophthalmology. 2020.
- Professor of Medicine at the Alfonso X el sabio University.
- Lecturer in the Master "Expert in Health Management in Ophthalmology" of the Ministry of Health of the Community of Madrid. 2020.
- Member of the Madrid Society of Ophthalmology and External Collaborator of Several Companies in the Medical Sector.

Professors

Dr. Gómez-Ulla de Irazazába, Francisco Javier

- Medical Director and Founder of the Ophthalmological Institute Gómez-Ulla (Santiago de Compostela). Since 2001
- Doctor of Medicine in 1981
- Degree in Medicine from the University of Santiago de Compostela. 1975
- Specialist in Ophthalmology in 1978
- Professor of Ophthalmology at the University of Santiago de Compostela since 2002.
- Member of scientific societies such as American Academy of Ophthalmology, Societé Française d'Ophtalmologie, Panamericam Association of Ophthalmology, Spanish society of Ophthalmology, Spanish society of Retina and Vitreous, and Galician society of Ophthalmology.
- Member of the Limnopharma Advisory Board.
- Researcher/consultant for Alcon, Allergan, Bayer Hispania S.L, Boehringer Ingelheim, Novartis Farmacéutica S.A Ophthoctech, Roche, Santem, Zeiss.

04

Structure and Content

The structure of the syllabus has been designed by a team of professionals who are knowledgeable regarding the implications of medical training in the approach to patients, aware of the relevance of current training and committed to quality teaching through new educational technologies.

we provide you with the most complete and updated scientific program on the market"

Module 1. Anatomy, Physiology, and Exploratory and Functional Tests.

1.1. Historical Notes and Classical Exploration in Consultation.
- 1.1.1. History to Understand the Present.
- 1.1.2. The Ophthalmoscope and its Examination Lenses.
- 1.1.3. The Slit Lamp and its Examination Lenses.
- 1.1.4. Historical Notes of Current Exploration Techniques.

1.2. Macula and Retina Atanomy..
- 1.2.1. Compared Anatomy.
- 1.2.2. Macula and Retinal Histology.
- 1.2.3. Vascularisation of the Retina and Macula.
- 1.2.4. Innervation of the Retina and Macula.

1.3. Vitreous Anatomy and Physiology.
- 1.3.1. Vitreous Embryology
- 1.3.2. Composition of the Vitreous Gel.
- 1.3.3. Hyaloid Insertions and Adhesions.
- 1.3.4. Ageing and Alterations of the Vitreous Gel.
- 1.3.5. The Vitreous in Myopic Patients.
- 1.3.6. The Vitreous in Certain Systemic Diseases.
- 1.3.7. Vitreous as a Trigger for Various Retinal and Macular Pathologies.

1.4. Physiology of Vision and Colour Vision.
- 1.4.1. Functional Layers of the Retina.
- 1.4.2. Photoreceptor Physiology
- 1.4.3. Functional Circuits of the Retina.
- 1.4.4. Optical Route
- 1.4.5. Physiology of the Visual Cortex.
- 1.4.6. Binocularity
- 1.4.7. Colour vision

1.5. Macular Functional Testing.
- 1.5.1. Basis of Macular Functional Testing.
- 1.5.2. Electroretinogram, Electrooculogram, and Evoked Potentials.
- 1.5.3. Multifocal Electroretinogram
- 1.5.4. Microperimetry.

1.6. Fundus Photography, Intravenous Fluorescein Angiography, and Indocyanine Green Angiography.
- 1.6.1. Analogue and Digital Retinography.
- 1.6.2. Widefield Retinography, Most Important Current Platforms.
- 1.6.3. Properties of Sodium Fluorescein and its Adverse Effects.
- 1.6.4. Normal AFG Pattern (Angiofluoresceingraphy).
- 1.6.5. Pathologic angiographic patterns, hyperfluorescence, hypofluorescence, and window effect.
- 1.6.6. Current Role and Clinical Indications of AFG.
- 1.6.7. Properties of Indocyanine Green and its Pharmacokinetics.
- 1.6.8. Pathological Angiographic Patterns of Indocyanine Green.

1.7. Fundus Autofluorescence
- 1.7.1. Concept and Physical Basis of Autofluorescence.
- 1.7.2. Autofluorescence Detection and Recording.
- 1.7.3. Normal Autofluorescence Patterns.
- 1.7.4. Pathological Autofluorescence Patterns.
- 1.7.5. Autofluorescence in Retinal Diseases.

1.8. Ultrasonic Retinal Evaluation.
- 1.8.1. Physical Bases of Ultrasound.
- 1.8.2. Current Platforms and Probes For Ocular Ultrasound Scans.
- 1.8.3. Current Ultrasound Methods and Modes.
- 1.8.4. Ocular Ultrasound Patterns.

1.9. Optical Coherence Tomography.
- 1.9.1. Physical Principles of OCT (Optical Coherence Tomography).
- 1.9.2. Historical Evolution of OCT.
- 1.9.3. Main OCT Platforms and Their Differential Characteristics.
- 1.9.4. Normal OCT Patterns.
- 1.9.5. Comparative Patterns of OCT Monitoring.
- 1.9.6. OCT in Major Macular and Interface Pathologies.

1.10. Angiography Using Optical Coherence Tomography.
- 1.10.1. Basis of AngioOCT.
- 1.10.2. Main Platforms For Performing AngioOCT.
- 1.10.3. Normal AngioOCT Patterns.
- 1.10.4. AngioOCT Analysis and Artefacts.
- 1.10.5. OCT in Major Macular Pathologies.
- 1.10.6. Clinical AngioOCT in Face.
- 1.10.7. The Present and Future of AngioOCT.

A unique, key, and decisive Training experience to boost your professional development"

05

Methodology

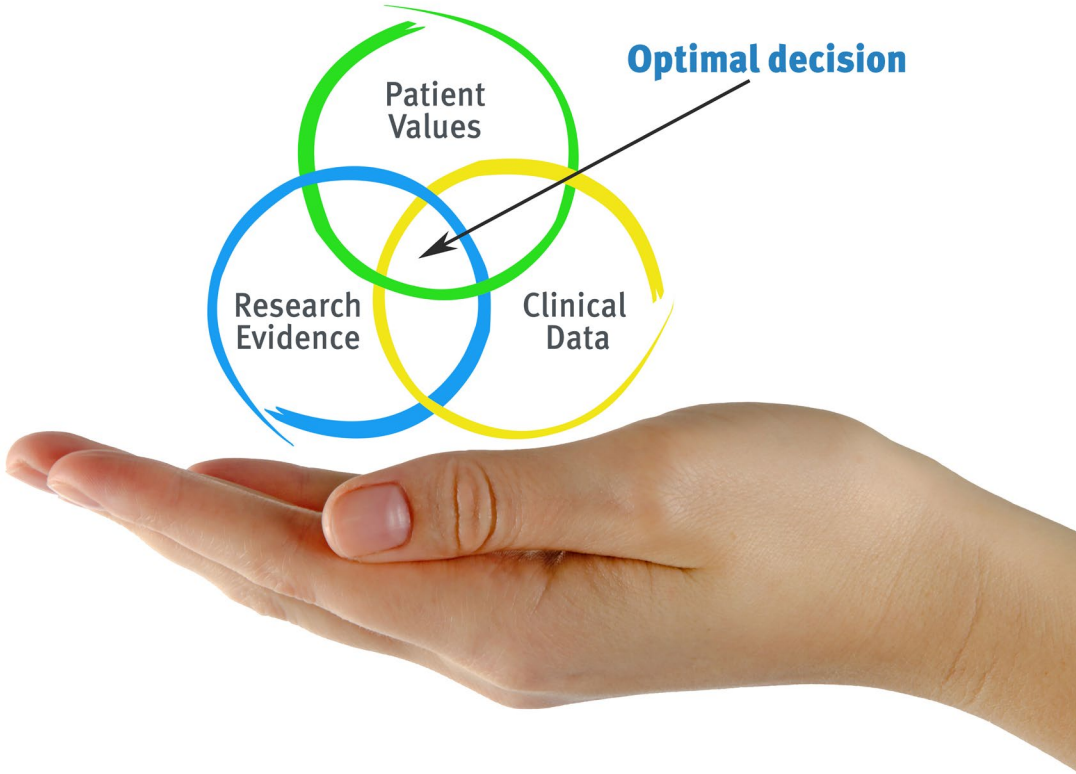
This training program provides you with a different way of learning. Our methodology uses a cyclical learning approach: ***Re-learning***.
This teaching system is used in the most prestigious medical schools in the world, and major publications such as the ***New England Journal of Medicine*** have considered 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. 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 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:

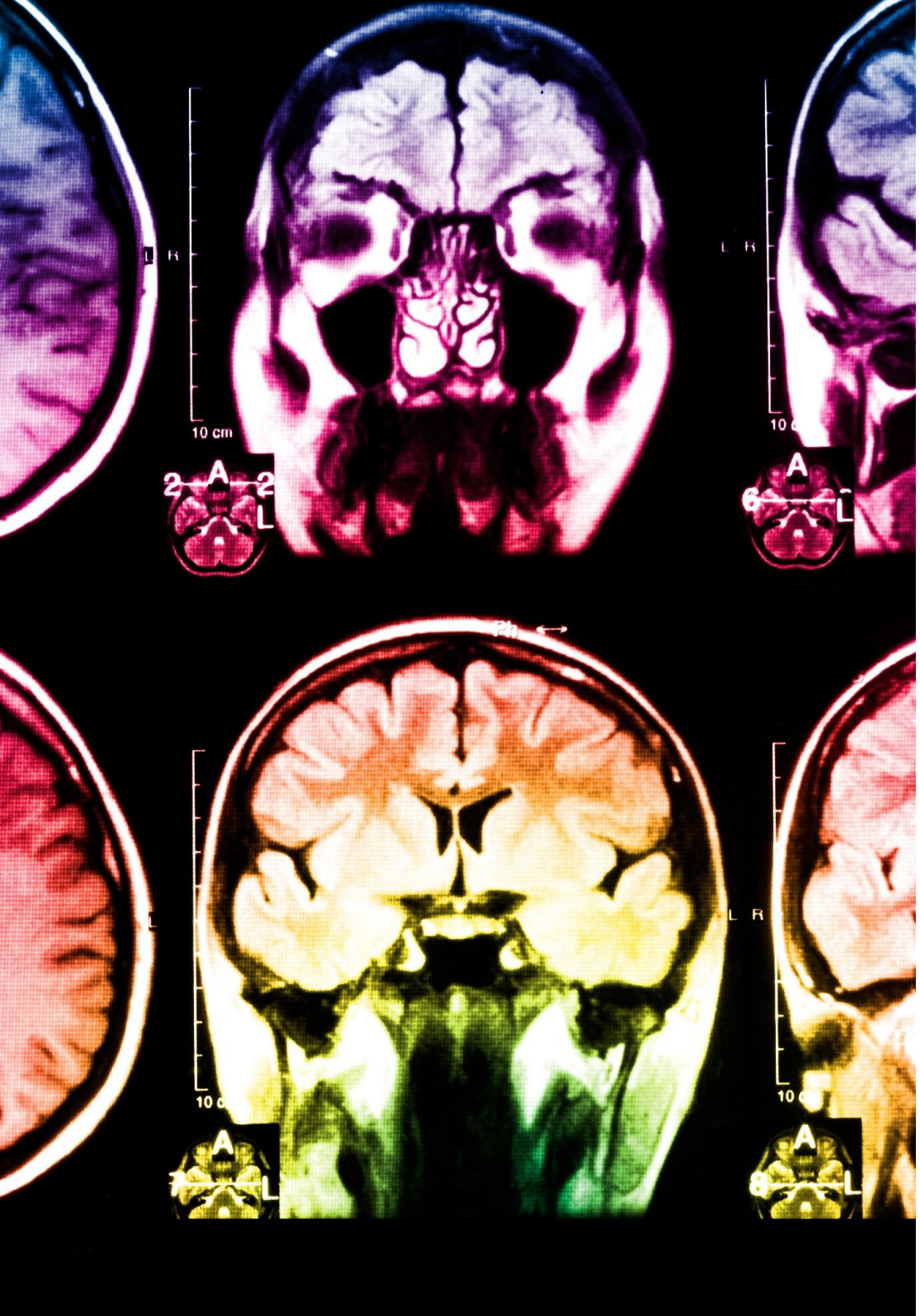
1. Students who follow this method not only grasp concepts, but also develop their mental capacity by evaluating real situations and applying their knowledge.
2. The learning process has a clear focus on practical skills that allow the student to better integrate into the real world.
3. Ideas and concepts 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 program you will have access to the best educational material, prepared with you 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.

This content is then adapted in an audiovisual format that will create our way of working online, with the latest techniques that allow us to offer you high quality in all of the material that we provide you with.

Latest Techniques and Procedures on Video

We introduce you to the latest techniques, to the latest educational advances, to the forefront of current medical techniques. 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.

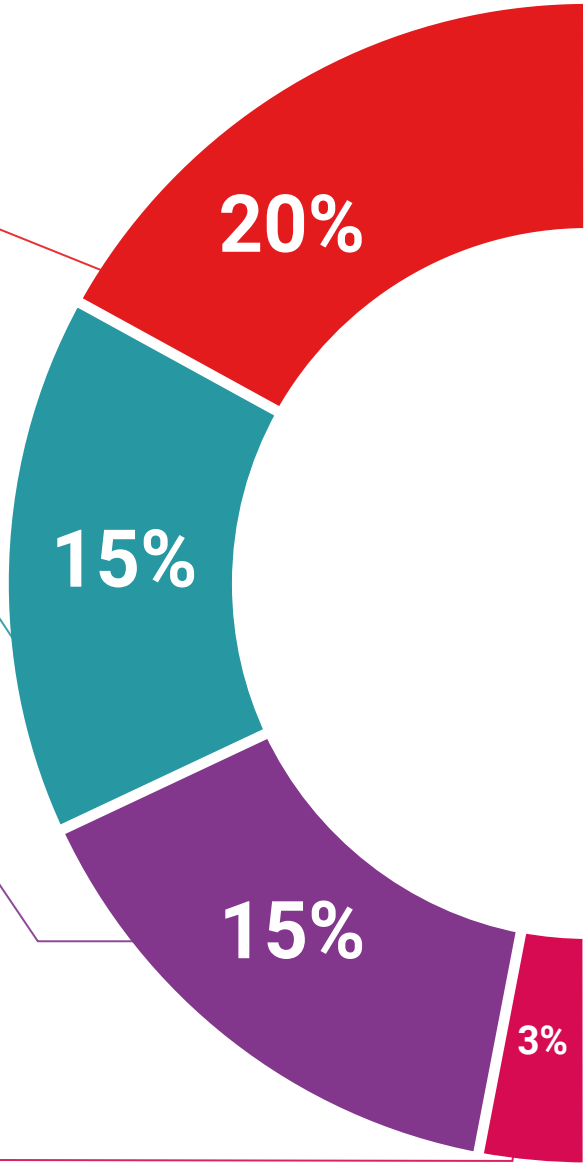
Interactive Summaries

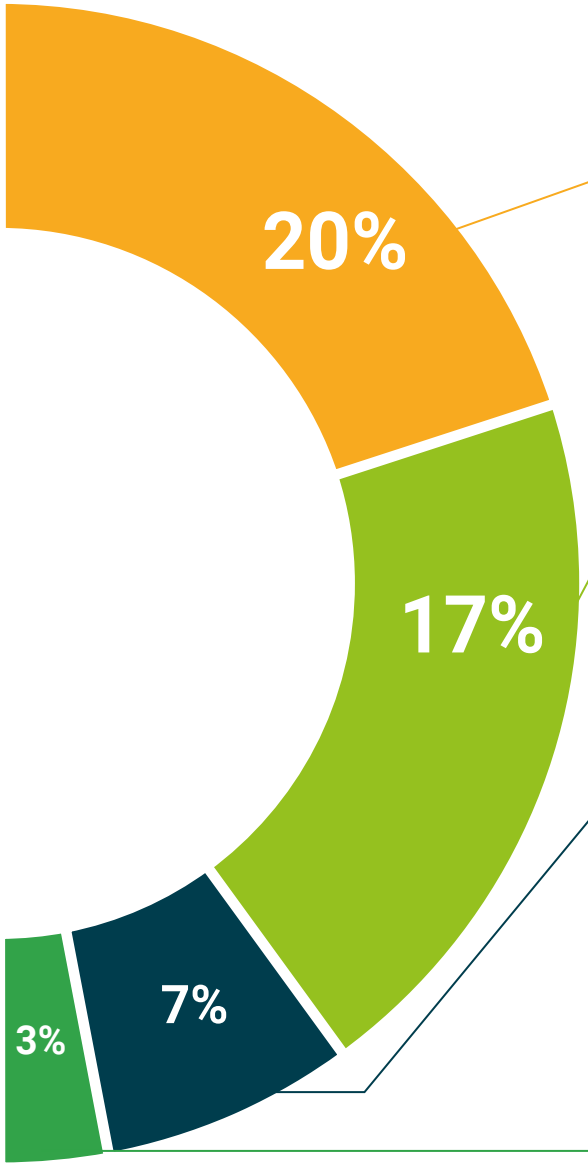
We present the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

This unique multimedia content presentation training system 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

Effective learning ought to be contextual. Therefore, we will present you with real case developments in which the expert will guide you through focusing on and solving the different situations: a clear and direct way to achieve the highest degree of understanding.

Testing & Re-testing

We periodically evaluate and re-evaluate your knowledge throughout the program, through assessment and self-assessment activities and exercises: so that you can see how you are achieving your goals.

Classes

There is scientific evidence suggesting that observing third-party experts can be useful.

Learning from an expert strengthens knowledge and memory, and generates confidence in our future difficult decisions.

Quick Action Guides

We offer you the most relevant contents of the course in the form of worksheets or quick action guides. A synthetic, practical, and effective way to help you progress in your learning.

06

Certificate

The Postgraduate Certificate in Anatomy, Physiology, Exploratory and Functional Tests of the Macula, Retina, and Vitreous guarantees you, in addition to the most rigorous and updated training, access to a Postgraduate Certificate issued by TECH Global University.

Successfully complete this training and receive your university degree without travel or laborious paperwork".

This program will allow you to obtain your **Postgraduate Certificate in Anatomy, Physiology, Exploratory and Functional Tests of the Macula, Retina, and Vitreous** 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 Anatomy, Physiology, Exploratory and Functional Tests of the Macula, Retina, and Vitreous**

Modality: **online**

Duration: **6 weeks**

Accreditation: **6 ECTS**


tech global university

Mr./Ms. _____, with identification document _____
has successfully passed and obtained the title of:

Postgraduate Certificate in Anatomy, Physiology, Exploratory and Functional Tests of the Macula, Retina, and Vitreous

This is a program of 180 hours of duration equivalent to 6 ECTS, with a start date of dd/mm/yyyy and an end date of dd/mm/yyyy.

TECH Global University is a university officially recognized by the Government of Andorra on the 31st of January of 2024, which belongs to the European Higher Education Area (EHEA).

In Andorra la Vella, on the 28th of February of 2024

Dr. Pedro Navarro Illana
Rector

This qualification must always be accompanied by the university degree issued by the competent authority to practice professionally in each country. Unique TECH Code: AFWORD23S techtitute.com/certificates

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

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Postgraduate Certificate

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