Postgraduate Certificate
Biomedical Imaging Techniques and Intervention in E-Health

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Postgraduate Certificate
Biomedical Imaging Techniques and Intervention in E-Health

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

Website: www.techtitute.com/in/information-technology/postgraduate-certificate/biomedical-imaging-techniques-intervention-e-health

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Introduction

The evolution that the medical sector has undergone with regarding the development of increasingly precise and effective techniques in biomedical imaging has made it possible to address diseases and pathologies more effectively and earlier, from their origin to their extinction. Within this framework are ultrasound, magnetic resonance imaging, radiology, computerized tomography, etc. However, in order to guarantee continuity in the processes of creation and adaptation of new techniques, it is necessary for IT professionals, the main agents in these cases, to know the ins and outs in detail of the sector. For this reason TECH has developed this complete and intensive program, which will help them to approach the strategies of recognition and intervention via image, from zero to its exhaustive management. All this 100% online and through 180 hours of academic experience that will mark a before and after in their professional career.

If you are looking to make your way in the field of E-Health through the extensive knowledge of recognition techniques through biomedical images, this Postgraduate Certificate is perfect for you"

The field of biomedical imaging has more than 1 century of history. As described by doctors Juan José Vaquero and Manuel Desco, "this technical advance has had the greatest impact on clinical practice". Thanks to the invention and development of strategies such as magnetic resonance imaging, ultrasound or computed tomography, it has been possible to perfect techniques for the diagnosis of diseases, as well as to improve our knowledge of them and of the most effective treatments. The clearest example is, without a doubt, all the progress that has been made in recent decades All this has been possible, to a greater extent, thanks to the extensive research of thousands of IT professionals who have worked tirelessly to adapt existing technology, applied in other fields, to the medical sector. For this reason, and so that graduates interested in this area can specialize in it and learn in detail the advances that have been made in recent times, TECH has decided to launch a program tailored to their needs and those of the clinical and technological market.

This is a versatile and multidisciplinary Postgraduate Certificate that covers the main techniques of recognition and intervention through biomedical imaging, as well as the procedures and tests most commonly used today. In this way, the graduate will be able to know in a specialized way the sector, as well as its ins and outs and the current demand, being able to direct their projects to meet it.All this in a 100% online way, through 180 hours of training of the highest quality and with the endorsement of one of the largest computer science faculties in the world.

This **Postgraduate Certificate in Biomedical Imaging Techniques and Intervention in E-Health** contains the most complete and up-to-date program on the market. The most important features include:

- The development of case studies presented by experts in Recognition and Intervention Techniques
- 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
- The practical exercises where the self-evaluation 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

Safety comes first. For that reason, with this course you will delve into radiation protection as a priority, as well as effective and efficient waste management"

You will have 180 hours of diverse material: theoretical syllabus, case studies based on real situations, audiovisual content, self-knowledge exercises and much more!"

You will work on noise reduction, as well as on the regulation of contrast, resolution and distortion in medical imaging tests.

Among the most significant aspects of this Postgraduate Certificate is the specialized treatment of 3D images through biomodels and their multiple clinical applications.

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

Its multimedia content, developed with the latest educational technology, will allow the professional a situated and contextual learning, that is, a simulated environment that will provide an immersive training programmed to train in real situations.

The design of this program focuses on Problem-Based Learning, in which the professional will have to try to solve the different professional practice situations that will arise throughout the academic course. For this purpose, students will be assisted by an innovative, interactive video system created by renowned and experienced experts.

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Objectives

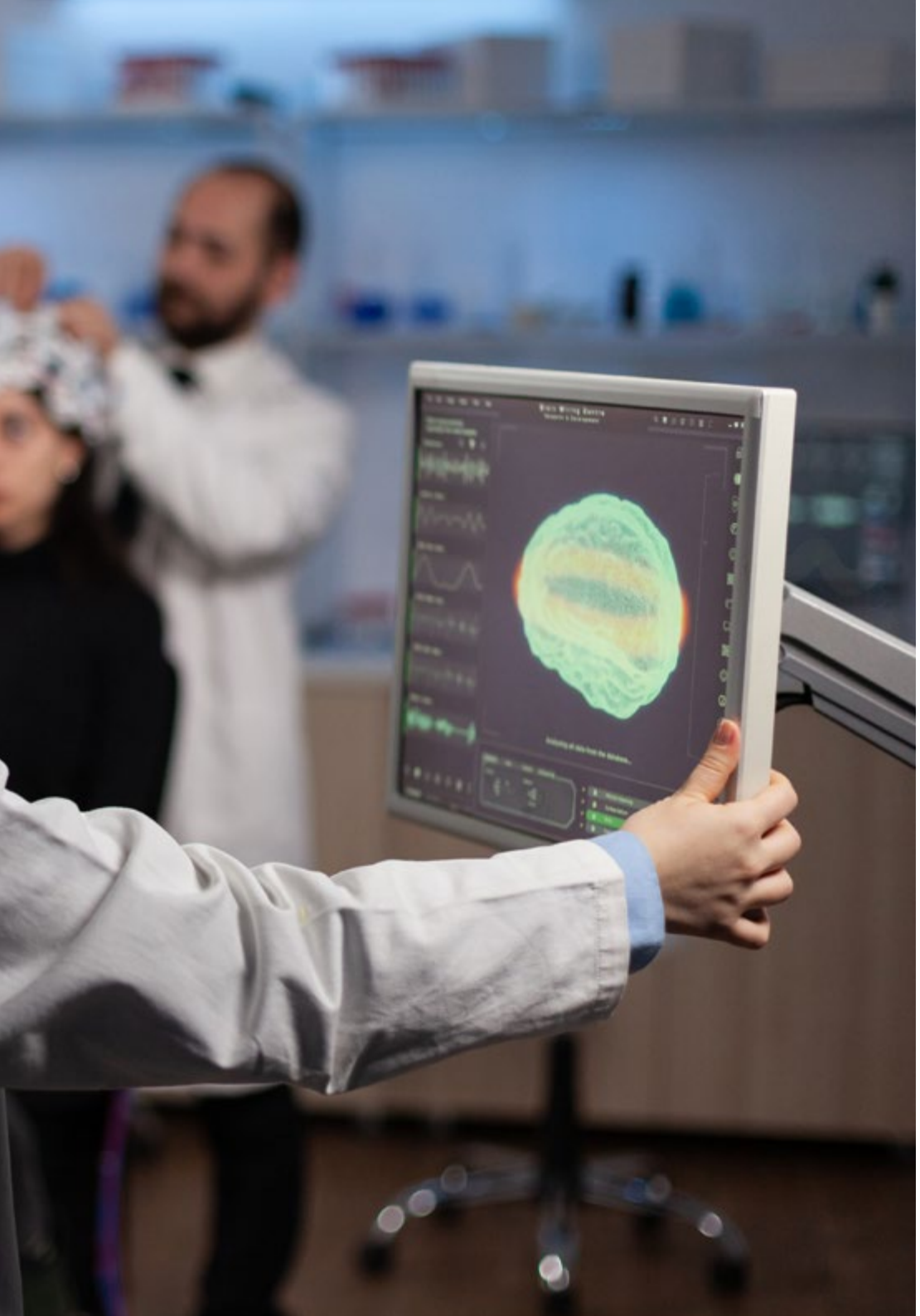
The demand from the medical sector for IT professionals to promote the evolution of techniques and strategies related to the practice of biomedical imaging, as well as for the maintenance and management of existing ones is what has motivated TECH to develop this Postgraduate Certificate. Based on this, the objective of the same is to guide the graduate in its update regarding the innovations of this sector, in a 100% online way and through the most innovative and effective academic tools.

A Postgraduate Certificate with which you will be able to get a guaranteed grounding in image-guided interventionism, as well as in the advantages and disadvantages of current practices"

General Objectives

- Develop key concepts of medicine that serve as a vehicle to understand clinical medicine
- Examine the ethical and best practice principles governing the different types of research in health sciences
- Identify the real clinical applications of the various techniques
- Provide the necessary resources to practically apply all the concepts in the modules
- Determine the importance of medical databases
- Determine the different types and applications of telemedicine
- Delve into the most common ethical aspects and regulatory frameworks of telemedicine
- Analyze the use of medical devices
- Collect e-Health success stories and mistakes to avoid

Would you like to master the physiological fundamentals of nuclear medicine? This Postgraduate Certificate includes the most complete catalog regarding Gammagraphy, SPECT, PECT and their clinical applications"



Specific Objectives

- Examine the fundamentals of medical imaging technologies
- Develop expertise in radiology, clinical applications and physical fundamentals
- Analyze ultrasound, clinical applications and physical fundamentals
- Delve into tomography, computed and emission tomography, clinical applications and physical fundamentals
- Determine how to manage magnetic resonance imaging, clinical applications and physical fundamentals
- Generate advanced knowledge of nuclear medicine, differences between PET and SPECT, clinical applications and physical fundamentals
- Discriminate noise in the image, reasons for it and image processing techniques to reduce it
- Present image segmentation technologies and explain their usefulness
- Gain a deeper understanding of the direct relationship between surgical interventions and imaging techniques
- Establish the possibilities offered by artificial intelligence in recognizing patterns in medical images, and thus deepen innovation in the field

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Course Management

Having a mentor has always been a very useful and effective way to gain in-depth knowledge of a given subject. That is why, for this Postgraduate Certificate TECH has selected a team of professionals in the area of bioinformatics and biomedical engineering specialized in the design, management and project management. This is a team that, despite their age, has a wide and extensive work experience in the sector, aspects that will undoubtedly be reflected in the content they have selected for this program.

The experience of the teaching team will help you to learn first-hand the most effective strategies in the field of biomedical imaging in E-Health"

Management

Ms. Sirera Pérez, Ángela

- Biomedical Engineer expert in Nuclear Medicine and exoskeleton design
- Designer of specific parts for 3D printing at Technadi
- Technician in the Nuclear Medicine area of the University Clinic of Navarra
- Degree in Biomedical Engineering from the University of Navarra
- MBA and Leadership in Health care and Medical Technology Companies


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Structure and Content

This Postgraduate Certificate has been designed by the teaching team following the strict quality guidelines that define TECH and thanks to which this university is considered one of the best in the field of 100% online teaching. In this way, graduates will have access to 180 hours of diverse content, selected on the basis of the latest developments in the field of E-Health and with the ultimate goal of serving them in your specialization regarding recognition techniques for guided intervention through biomedical imaging.

A syllabus designed for you, your availability and, above all, your academic and professional needs"

Module 1. Techniques, Recognition and Intervention using Biomedical Imaging

1.1. Medical Imaging
- 1.1.1. Modalities in Medical Imaging
- 1.1.2. Objectives in Medical Imaging Systems
- 1.1.3. Medical Imaging Storage Systems

1.2. Radiology
- 1.2.1. Imaging Method
- 1.2.2. Radiology Interpretation
- 1.2.3. Clinical Applications

1.3. Computed Tomography (CT)
- 1.3.1. Principle of Operation
- 1.3.2. Image Generation and Acquisition
- 1.3.3. Computerized Tomography. Typology
- 1.3.4. Clinical Applications

1.4. Magnetic Resonance Imaging (MRI)
- 1.4.1. Principle of Operation
- 1.4.2. Image Generation and Acquisition
- 1.4.3. Clinical Applications

1.5. Ultrasound: Ultrasound and Doppler Sonography
- 1.5.1. Principle of Operation
- 1.5.2. Image Generation and Acquisition
- 1.5.3. Typology
- 1.5.4. Clinical Applications

1.6. Nuclear medicine
- 1.6.1. Physiological Basis in Nuclear Studies. Radiopharmaceuticals and Nuclear Medicine
- 1.6.2. Image Generation and Acquisition
- 1.6.3. Types of Tests
  - 1.6.3.1. Gammagraphy.
  - 1.6.3.2. SPECT
  - 1.6.3.3. PET
  - 1.6.3.4. Clinical Applications

1.7. Image-Guided Interventions
- 1.7.1. Interventional Radiology
- 1.7.2. Interventional Radiology Objectives
- 1.7.3. Procedures
- 1.7.4. Advantages and Disadvantages

1.8. Image Quality
- 1.8.1. Technique
- 1.8.2. Contrast
- 1.8.3. Resolution
- 1.8.4. Noise
- 1.8.5. Distortion and Artifacts

1.9. Medical Imaging Tests. Biomedicine
- 1.9.1. Creating 3D Images
- 1.9.2. Biomodels
  - 1.9.2.1. DICOM Standard
  - 1.9.2.2. Clinical Applications

1.10. Radiological Protection
- 1.10.1. European Legislation Applicable to Radiology Services
- 1.10.2. Safety and Action Protocols
- 1.10.3. Radiological Waste Management
- 1.10.4. Radiological Protection
- 1.10.5. Care and Characteristics of Rooms

In less than 6 weeks you will have mastered medical image storage systems, as well as the methods of obtaining resources and their clinical applications. Are you in?"

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.

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"

Case Study to contextualize all content

Our program offers a revolutionary approach to developing skills and knowledge. Our goal is to strengthen skills in a changing, competitive, and highly demanding environment.

At TECH, you will experience a learning methodology that is shaking the foundations of traditional universities around the world"

You will have access to a learning system based on repetition, with natural and progressive teaching throughout the entire syllabus.

The student will learn to solve complex situations in real business environments through collaborative activities and real cases.

A learning method that is different and innovative

This TECH program is an intensive educational program, created from scratch, which presents the most demanding challenges and decisions in this field, both nationally and internationally. This methodology promotes personal and professional growth, representing a significant step towards success. The case method, a technique that lays the foundation for this content, ensures that the most current economic, social and professional reality is taken into account.

"Our program prepares you to face new challenges in uncertain environments and achieve success in your career"

The case method has been the most widely used learning system among the world's leading Information Technology schools for as long as they have existed. The case method was developed in 1912 so that law students would not only learn the law based on theoretical content. It consisted of presenting students with real-life, complex situations for them to make informed decisions and value judgments on how to resolve them. In 1924, Harvard adopted it as a standard teaching method.

What should a professional do in a given situation? This is the question that you are presented with in the case method, an action-oriented learning method. Throughout the course, students will be presented with multiple real cases. They will have to combine all their knowledge and research, and argue and defend their ideas and decisions.

Relearning Methodology

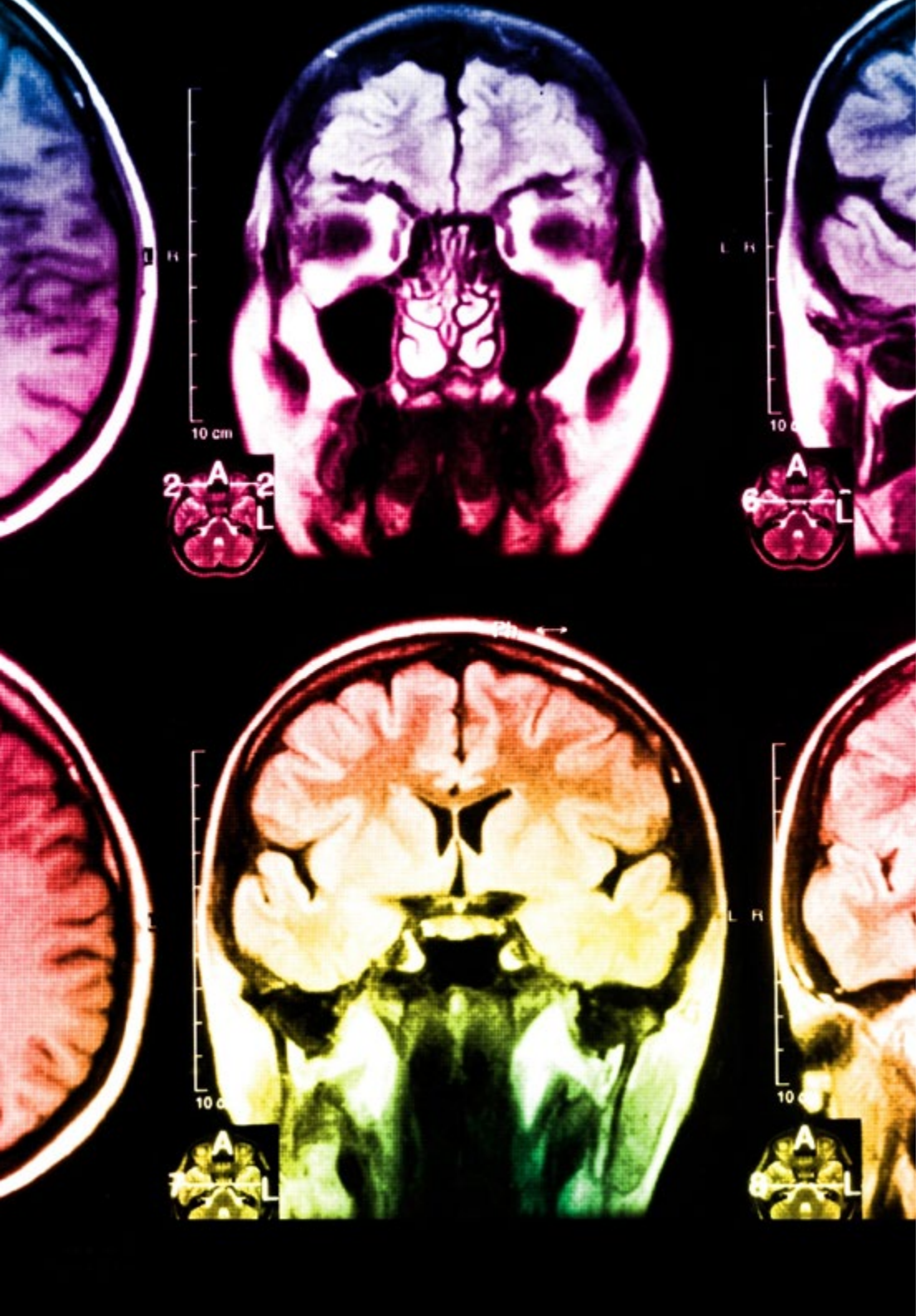
TECH effectively combines the Case Study methodology with a 100% online learning system based on repetition, which combines different teaching elements in each lesson.

We enhance the Case Study with the best 100% online teaching method: Relearning.

In 2019, we obtained the best learning results of all online universities in the world.

At TECH you will learn using a cutting-edge methodology designed to train the executives of the future. This method, at the forefront of international teaching, is called Relearning.

Our university is the only one in the world authorized to employ this successful method. In 2019, we managed to improve our students' overall satisfaction levels (teaching quality, quality of materials, course structure, objectives...) based on the best online university indicators.



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. This methodology has trained more than 650,000 university graduates with unprecedented success in fields as diverse as biochemistry, genetics, surgery, international law, management skills, sports science, philosophy, law, engineering, journalism, history, and financial markets and instruments. All this in a highly demanding environment, where the students have a strong socio-economic profile and an average age of 43.5 years.

Relearning will allow you to learn with less effort and better performance, involving you more in your training, developing a critical mindset, defending arguments, and contrasting opinions: a direct equation for success.

From the latest scientific evidence in the field of neuroscience, not only do we know how to organize information, ideas, images and memories, but we know that the place and context where we have learned something is fundamental for us to be able to remember it and store it in the hippocampus, to retain it in our long-term memory.

In this way, and in what is called neurocognitive context-dependent e-learning, the different elements in our program are connected to the context where the individual carries out their professional activity.

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.

Classes

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

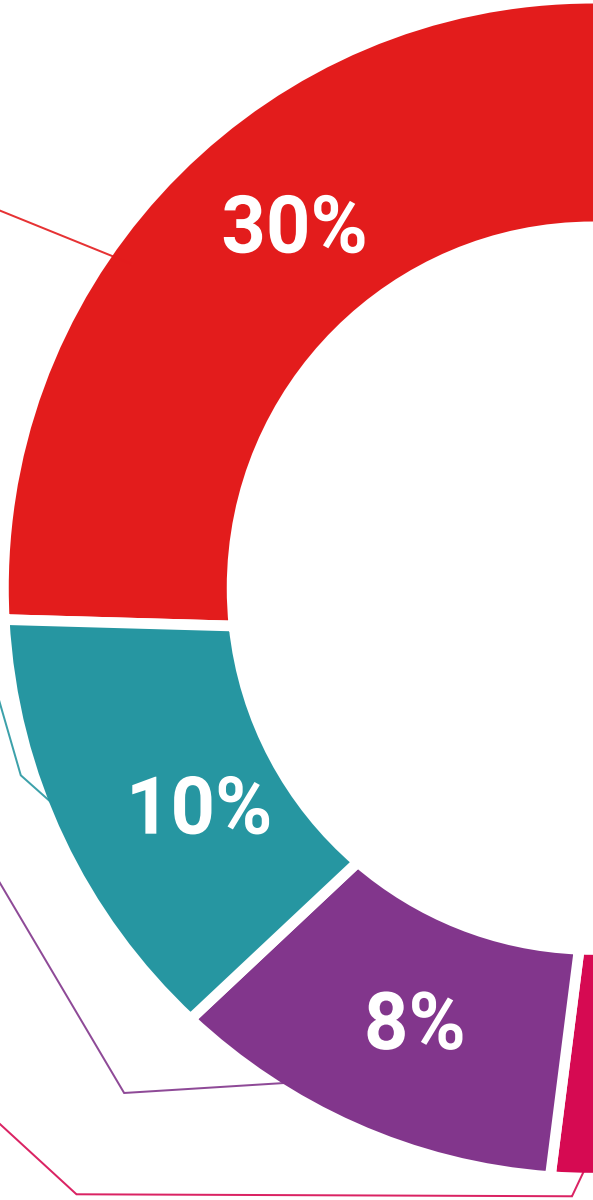
Learning from an Expert strengthens knowledge and memory, and generates confidence in future difficult decisions.

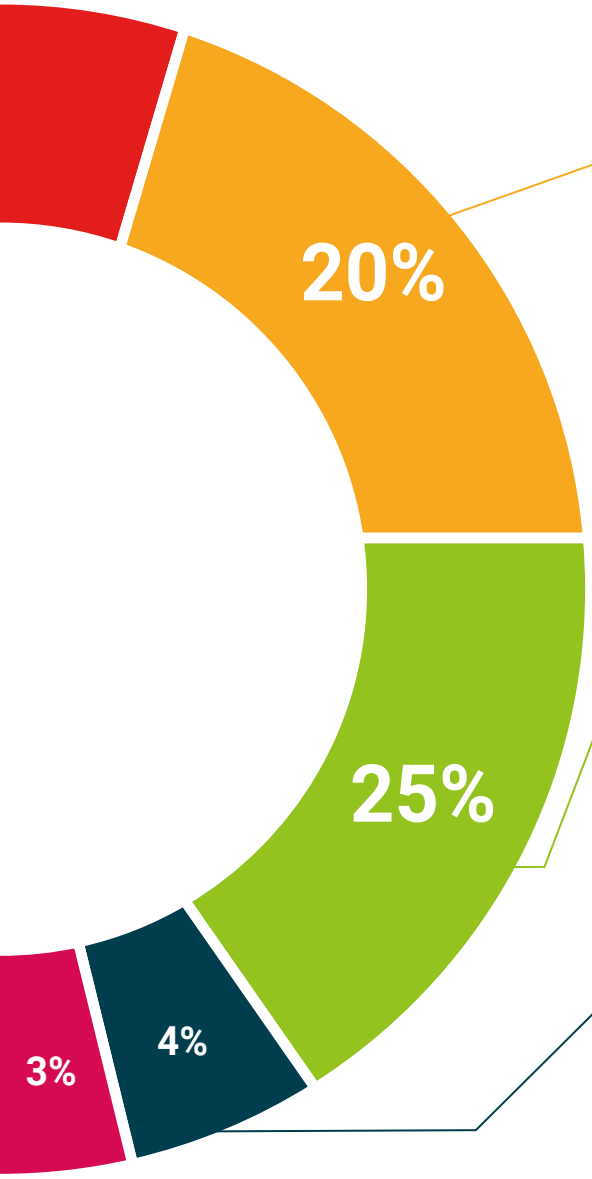
Practising Skills and Abilities

They will carry out activities to develop specific skills and abilities in each subject area. Exercises and activities to acquire and develop the skills and abilities that a specialist needs to develop in the context of the globalization that we are experiencing.

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.





Case Studies

Students will complete a selection of the best case studies chosen specifically for this program. Cases that are presented, analyzed, and supervised by the best specialists in the world.

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".

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.

06

Certificate

The Postgraduate Certificate in Biomedical Imaging Techniques and Intervention in E-Health guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Certificate issued by TECH Global University.

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 Biomedical Imaging Techniques and Intervention in E-Health** 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 Biomedical Imaging Techniques and Intervention in E-Health**

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 Biomedical Imaging Techniques and Intervention in E-Health

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

Unique TECH Code: AFWORD23S techtitute.com/certificates

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

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