Postgraduate Certificate
Biomedical Imaging Techniques and Intervention in E-Health

tech global university

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/us/nursing/postgraduate-certificate/biomedical-imaging-techniques-intervention-e-health**

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01

Introduction

Biomedical imaging has brought a great evolution in the clinical field. Thanks to this tool, surgical interventions have been reduced and less invasive treatments have been used. Radiology is a field that covers the diagnosis of disease and its treatment and, among other things, can help to prevent its early onset. Given the importance of applying all the technological tools to the clinical context, the professionals who handle them must master them with great theoretical and practical skills. In this sense, TECH offers a complete and rigorous program that addresses the advantages of applying biomedical imaging in the recognition and health intervention. All this, through a 100% online program, which has various audiovisual materials that energize their study. A unique opportunity for graduates in Nursing and other sciences who are committed to a digital academic experience.

Join now to master the techniques of radiological intervention in just 6 weeks and online"

Biomedical imaging is the innovative alternative to surgical intervention. Their processes are diverse depending on the pathology in which they are applied and are an advantage in clinical applications and biomedicine. This program delves in detail into each of the techniques and procedures related to medical imaging tests, such as image-guided interventionism, nuclear medicine and ultrasound, among many other concepts.

This Postgraduate Certificate has been consciously designed to educate health care specialists with a future vision towards medical care and to meet the current demands of the sector. In this line, public and private companies opt for professionals who are updated in new tools, such as computed tomography. Therefore, it is essential that those who want to work in this area or are already working in it, decide to expand and update their knowledge. This is TECH's goal, through a 100% online modality, so that studying this program does not require students to disregard other areas of their private and professional lives.

TECH proposes a theoretical-practical program in which the simulation of real cases taught by teachers based in Radiology and Biomedicine stand out. In this way, students will have the guidance of professionals with whom they will be able to contact through a direct communication channel. All this, so that the specialist is introduced to new areas, such as nuclear medicine and radiotracer tracking, and also to the way in which these tools can continue to evolve in the future.

This **Postgraduate Certificate in Biomedical Imaging Techniques and Intervention in E-Health** contains the most complete and up-to-date scientific 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

Be part of the clinical evolution, becoming an expert in the E-Health field and mastering the tools for intervention with biomedical imaging"

It delves into the regulatory aspects and rules of telemedicine to understand the importance of acting under health ethics.

Computerized Tomography has opened up a range of possibilities in the clinical interventions. Learn about the latest developments with TECH.

"*PET has succeeded in reducing invasive interventions and in identifying technological alternatives to surgery in critically ill patients. Enter now into the future of medicine thanks to the syllabus of this program*"

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. This will be done with the help of an innovative system of interactive videos made by renowned experts.

02
Objectives

The main objective of this program is to broaden and update the theoretical and practical knowledge of graduates in Nursing and other scientific branches who wish to project their professional career towards the future perspective of biomedical imaging. A program that explores the classification, management and analysis of these images, in order to apply the advances in the surgical field, among others in the health sector. It is a 100% online teaching, which will allow the in-depth knowledge of E-Health, attending to magnetic resonance imaging, radiological and ultrasound procedures and, additionally, in the innovations of nuclear medicine.

"

Meet your objectives with the most innovative pedagogical tools and join a Relearning teaching with which you will dispense with long hours of memorization"

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

Deepen in the distinction between PET and SPECT techniques and apply these diagnostic tests according to the practical case you may encounter in your profession"

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

03
Course Management

Given the strong demand in the labor market for experts specialized in new technologies, TECH has been equipped with the theoretical and practical knowledge of those already working in the clinical sector so that they can pass it on to future professionals. In this sense, by taking this program, students will not only receive theoretical contents, but will also be able to learn from the wide experience of experts in radiophysics and biomedicine and apply their advice in the real scenario of action. The team of specialists who have designed this program also offers audiovisual tools, such as explanatory videos, which complement the 180 hours of specialization with great dynamism and make the academic program an enriching experience.

Do not wait any longer, count on the support of experts in radiophysics and biomedicine to help you understand the power of biomedical imaging as an alternative to surgery"

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

04
Structure and Content

The content of this Postgraduate Certificate has been developed in detail with the best structure, so that students learn the latest scientific evidence in their field in a gradual way. In this way and thanks to the Relearningmethodology, students will not have to invest long hours of memorization in the subject. A teaching with which the specialist will master the typology of biomedical images and the technical requirements to understand its principles, its operation, its method of obtaining, its analysis and its clinical application. This program also offers audiovisual tools in all formats that dynamize the study with video summaries, activities, simulation of practical cases, among many others.
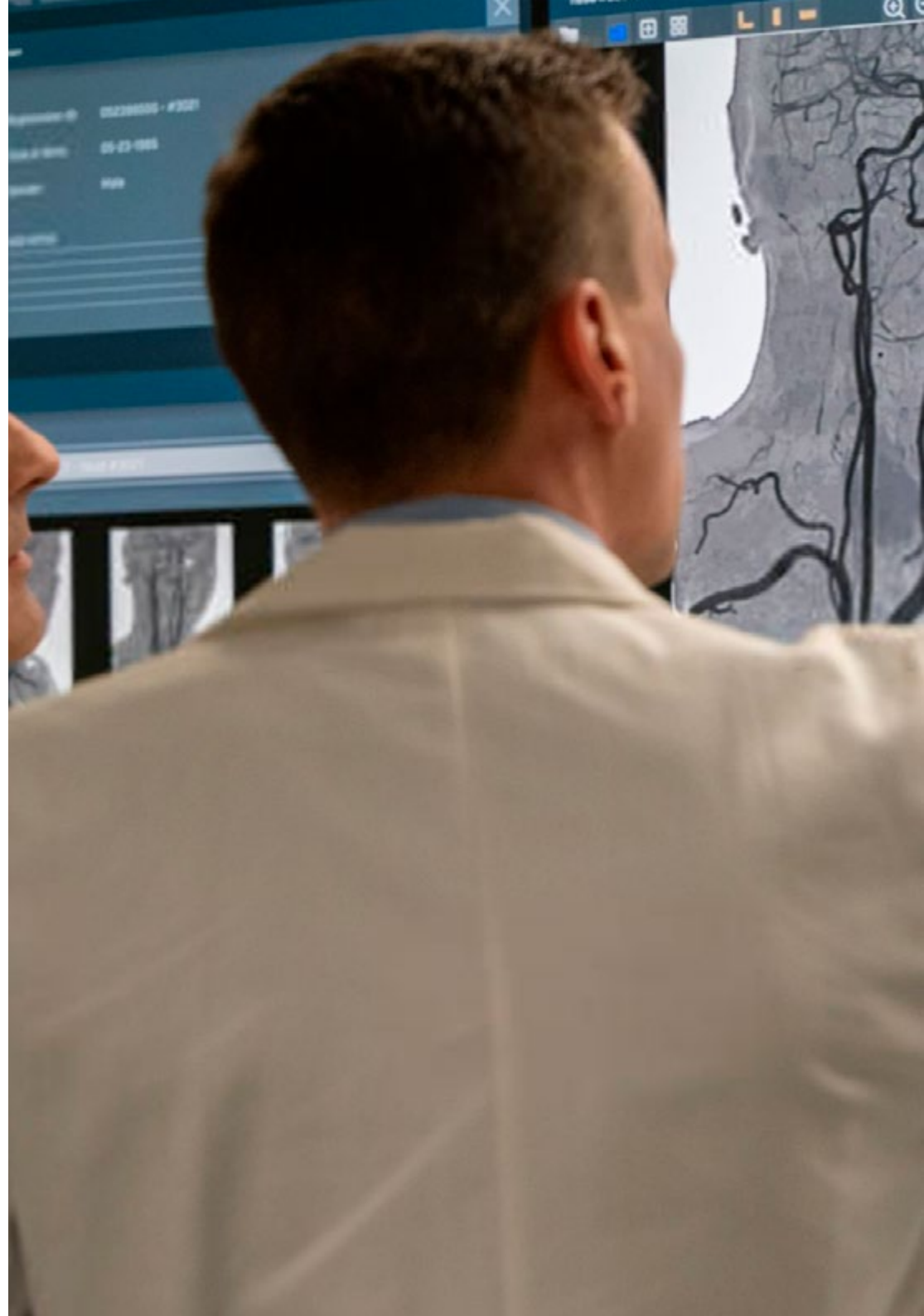
A syllabus with 180 hours of extensive specialization and a downloadable reference guide that the specialist can rely on in his device"

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 2Nuclear 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

Understand the current relationship between surgical interventions and biomedical image analysis, thanks to an innovative program that TECH has created for specialists like you"

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"

At TECH Nursing School we use the Case Method

In a given situation, what should a professional do? 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. Nurses learn better, faster, and more sustainably over time.

With TECH, nurses can experience a learning methodology that is shaking the foundations of traditional universities around the world.
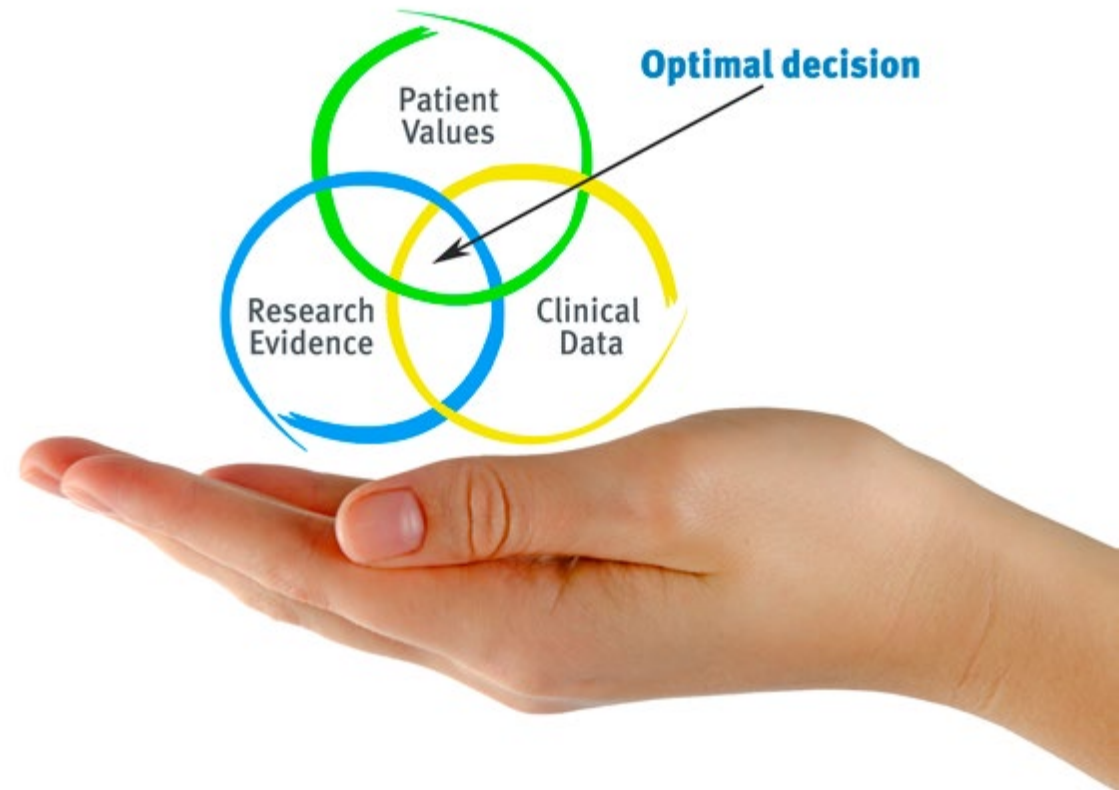
According to Dr. Gérvas, the clinical case is the annotated presentation of a patient, or group of patients, which becomes a "case", an example or model that illustrates some peculiar clinical component, either because of its teaching power or because of its uniqueness or rarity. It is essential that the case is based on current professional life, in an attempt to recreate the real conditions in professional nursing 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. Nurses 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 nursing professional to better integrate knowledge acquisition into the hospital setting or primary care.

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 case studies with a 100% online learning system based on repetition combining a minimum of 8 different elements in each lesson, which is a real revolution compared to the simple study and analysis of cases.
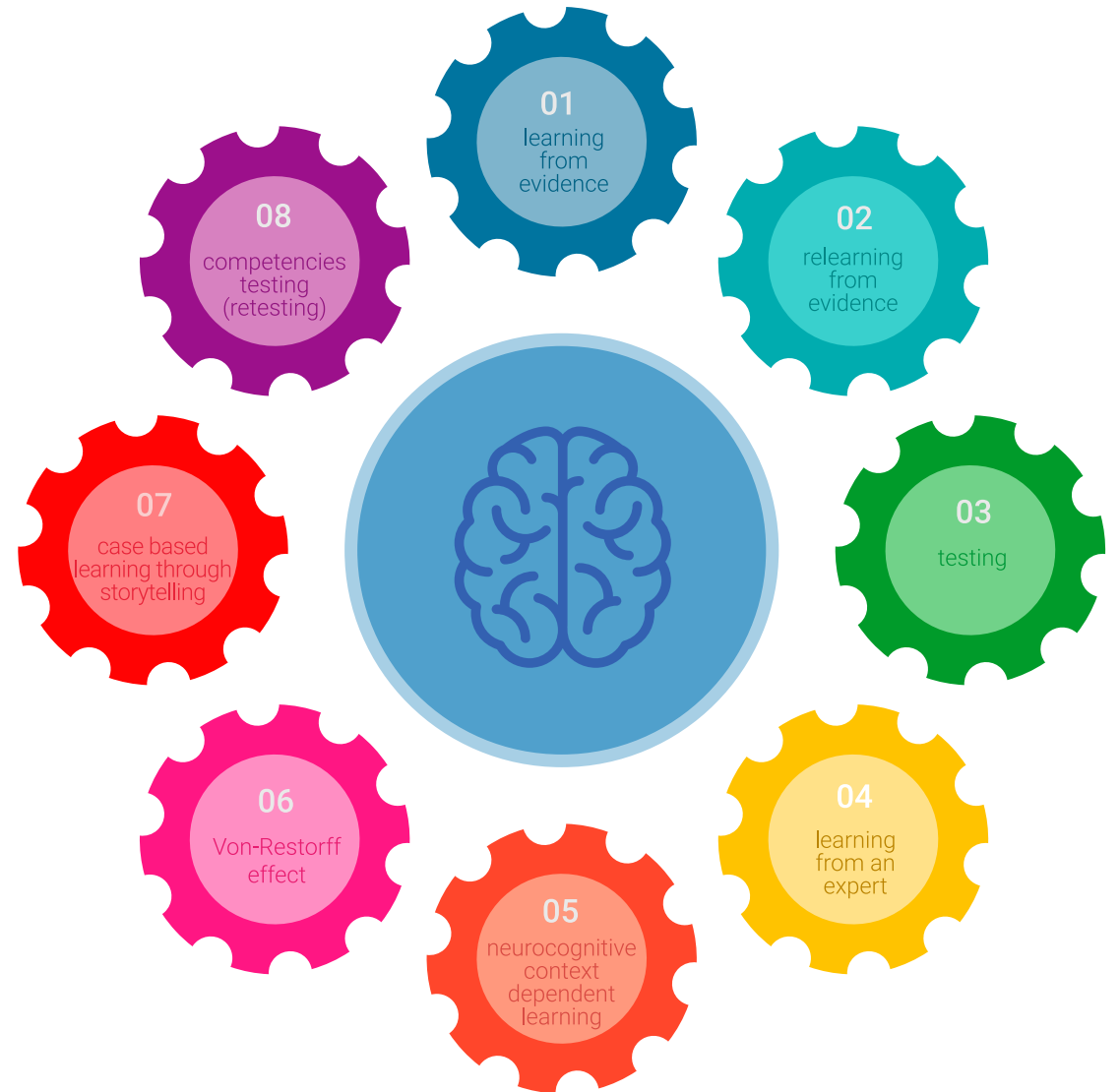
The nurse will learn through real cases and by solving complex situations in simulated learning environments. These simulations are developed using state-of-the-art software to facilitate immersive learning.

01 learning from evidence

02 relearning from evidence

03 testing

04 learning from an expert

05 neurocognitive context dependent learning

06 Von-Restorff effect

07 case based learning through storytelling

08 competencies testing (retesting)

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 we have trained more than 175,000 nurses with unprecedented success in all specialities regardless of practical workload. 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 really 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.

Nursing 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 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 them as many times as you want.

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.

20%

15%

15%

3%

20%

17%

7%

3%
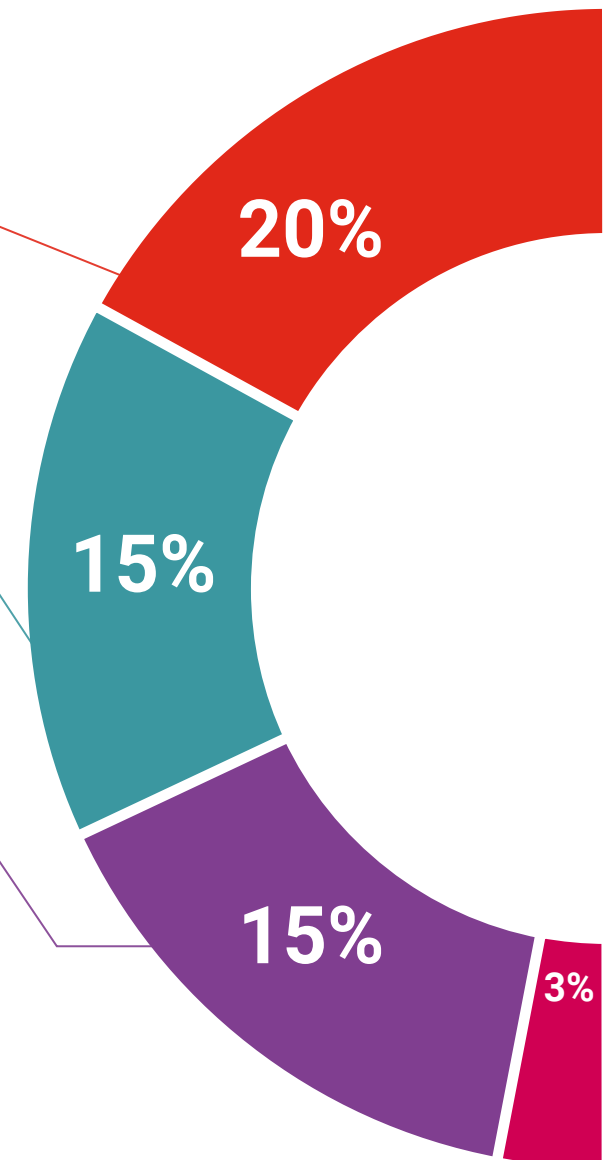
Expert-Led Case Studies and Case Analysis

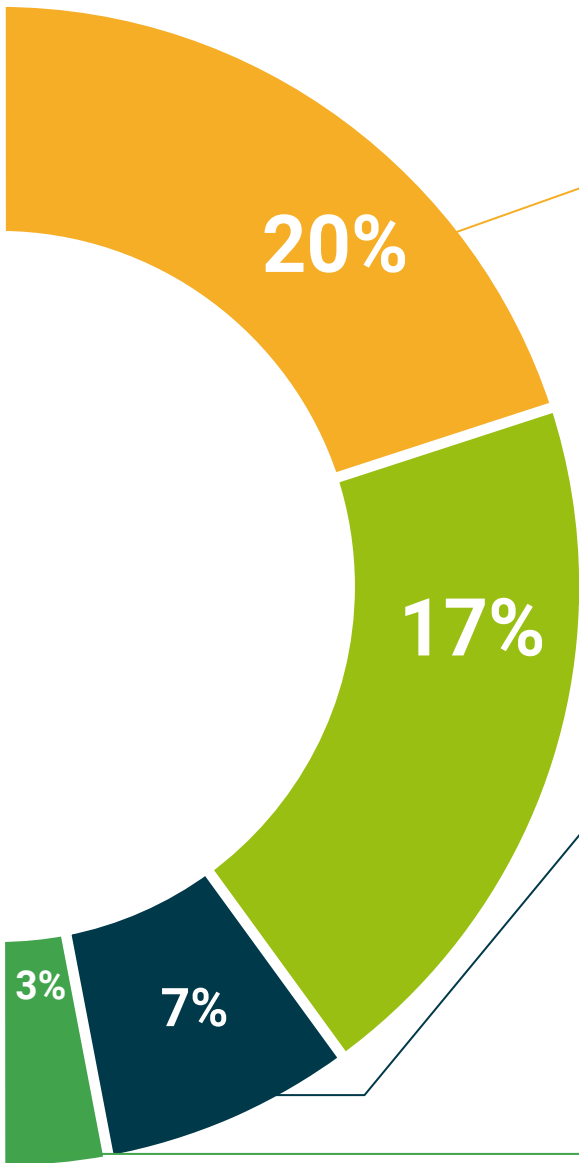Effective learning ought to be contextual. Therefore, TECH presents real cases in which the expert will guide students, focusing on and solving the different situations: a clear and direct way to achieve the highest degree of understanding.

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 suggesting that observing third-party experts can be useful.

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 Biomedical Imaging Techniques and Intervention in E-Health guarantees, in addition to the most rigorous and updated training, access to a Postgraduate Certificate program 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**

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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

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

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

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