

Postgraduate Certificate Artificial Intelligence and IoT Applications in Telemedicine





Postgraduate Certificate Artificial Intelligence and IoT Applications in Telemedicine

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

Website: www.techtute.com/us/artificial-intelligence/postgraduate-certificate/artificial-intelligence-iot-applications-telemedicine

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01

Introduction

The combination of Artificial Intelligence and the Internet of Things play an essential role in both the evolution and optimization of Telemedicine. Although these disciplines have been in place in medical practice for decades, their use grew in the wake of COVID-19. So much so that the World Health Organization presented a global strategy on digital health, aware of the relevance of these technologies. For this reason, the healthcare industry is demanding the incorporation of specialists in Machine Learning. To contribute to their correct specialization, TECH is developing a university program focused on this subject that will incorporate the latest advances that have occurred in this regard. All in a 100% online format!





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A Postgraduate Certificate based on repetition, with a progressive teaching with which you will develop innovative solutions in Telemedicine and contribute to scientific research in this field"

A study published by a prestigious global investment banking and securities firm predicts that Artificial Intelligence systems will increase exponentially in all jobs. At the moment, the healthcare area is one of the professional sectors where advanced technologies are most used, one example being the Internet of Things. In this way, the world of Telemedicine takes advantage of Intelligent Systems to provide individualized assistance to users and monitor their state of health instantly. This is especially for people suffering from reduced mobility or serious conditions such as cancer or heart problems.

Its objective is to raise both the knowledge and practical skills of specialists to promote innovations in the healthcare field. To achieve this, the academic itinerary will delve into issues such as Remote Analysis of Results, Preventive Medicine or Algorithms for Image Processing. In this way, students will be nourished with the most cutting-edge techniques to develop devices or applications that improve the well-being of individuals. In this way, students will learn the most cutting-edge techniques to develop devices or applications that improve the well-being of individuals. Likewise, the syllabus will delve into the proper handling of Nanorobots with which to diagnose diseases and carry out the appropriate treatments.

The university program stands out for providing students with a library full of multimedia didactic resources, as well as specialized readings and clinical case studies that will allow students to integrate into their daily practice the most effective strategies or tools to contribute to the recovery of sick subjects. Undoubtedly, a unique opportunity for professionals to keep abreast of advances in Telemedicine and Artificial Intelligence through a convenient 100% online format. In addition, the only thing students will need to access the Virtual Campus is an electronic device with an Internet connection, even their own smartphone will do.

This **Postgraduate Certificate in Artificial Intelligence and IoT Applications in Telemedicine** contains the most complete and up-to-date program on the market. The most important features include:

- ♦ The development of practical cases presented by experts in applications of Artificial Intelligence in Telemedicine
- ♦ The graphical, schematic and practical contents with which it is conceived gather technological and practical information on those disciplines that are essential for professional practice
- ♦ Practical exercises where the self-assessment process can be carried out to improve learning
- ♦ Its special emphasis on innovative methodologies
- ♦ Theoretical lessons, questions to the expert, debate forums on controversial topics, and individual reflection assignments
- ♦ Content that is accessible from any fixed or portable device with an Internet connection



Enrich your professional practice by incorporating recent technological advances in the field of Nanotechnology"

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You will develop the most innovative Artificial Intelligence Algorithms for the processing of medical images and help physicians in the diagnosis of diseases”

You will acquire a solid understanding of the ethical issues involved in handling sensitive data and automated clinical decision making.

With this program you will learn at your own speed and without time obstacles, thanks to the Relearning system conceived by TECH.

The program’s teaching staff includes professionals from the 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 during the academic year. For this purpose, the students will be assisted by an innovative interactive video system created by renowned and experienced experts.



02 Objectives

This university program will boost the employability of graduates in emerging technological fields such as Artificial Intelligence, e-Health and the Internet of Things. At the end of this program, students will nurture their usual procedures with the most innovative tools to provide personalized Telemedicine services. In this sense, they will skillfully handle instruments for the prevention and monitoring of patients' clinical status remotely. It is worth noting that professionals will be highly prepared to develop innovative solutions such as wellness applications or devices to assess the health of users accurately.





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This university program will bring you closer to your professional goals, equipping you with innovative resources to overcome today's challenges in Vital Signs Monitoring"



General Objectives

- ♦ Delve into key concepts of medicine that serve as a vehicle to understand clinical medicine
- ♦ Determine the major diseases affecting the human body classified by apparatus or systems, structuring each module into a clear outline of pathophysiology, diagnosis, and treatment
- ♦ Determine how to obtain metrics and tools for healthcare management
- ♦ Understand the basics of basic and translational scientific methodology
- ♦ Examine the ethical and best practice principles governing the different types of research in health sciences
- ♦ Identify and generate the means of funding, assessing and disseminating scientific research
- ♦ Locate the real clinical applications of the various techniques
- ♦ Develop the key concepts of computational science and theory
- ♦ Determine the applications of computation and its implication in bioinformatics
- ♦ Provide the necessary resources to practically apply all the concepts in the modules
- ♦ Provide the fundamental concepts of databases
- ♦ Determine the importance of medical databases
- ♦ Delve into the most important techniques in research
- ♦ Identify the opportunities offered by the IoT in the field of *e-Health*
- ♦ Provide specialized knowledge of the technologies and methodologies used in the design, development and assessment of telemedicine systems
- ♦ Determine the different types and applications of telemedicine
- ♦ Study the most common ethical aspects and regulatory frameworks of telemedicine
- ♦ Analyze the use of medical devices
- ♦ Develop the key concepts of entrepreneurship and innovation in *e-Health*
- ♦ Determine what a business model is and the types that exist



Specific Objectives

- Propose communication protocols in different scenarios in the healthcare field
- Analyze IoT communication, as well as its application areas in *e-Health*
- Substantiate the complexity of artificial intelligence models in its use in healthcare
- Present all the Cloud technologies available to develop *e-Health* and IoT products, both in computing and communication



You will obtain technical skills that will allow you to design, implement and evaluate Artificial Intelligence systems for Telemedicine applications"

03

Course Management

TECH's priority is to preserve the excellent quality that characterizes its university programs, with the objective that these educational experiences guarantee the professional development of its students. Therefore, for this Postgraduate Certificate it has the support of a first class teaching staff. These professionals are highly specialized in Artificial Intelligence, e-Health and Big Data. In addition, they stand out for their extensive professional background, where they have provided innovative solutions to renowned companies. Thanks to this, these experts have designed first-class academic materials to guarantee students a dynamic and enriching learning experience.



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You will have the opportunity to consult all your doubts directly with the teaching staff, who will provide you with personalized tutoring adapted to your own needs and demands"

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 Healthcare and Medical Technology Companies

Professors

Ms. Muñoz Gutiérrez, Rebeca

- ♦ *Data Scientist* at INDITEX
- ♦ *Firmware Engineer* for Clue Technologies
- ♦ Graduate in Health Engineering, specializing in Biomedical Engineering from the University of Malaga and the University of Seville
- ♦ Master's Degree in Intelligent Avionics, Clue Technologies, in collaboration with the University of Málaga
- ♦ NVIDIA: *Fundamentals of Accelerated Computing with CUDA C/C++*
- ♦ NVIDIA: *Accelerating CUDA C++ Applications with Multiple GPU*



04

Structure and Content

This Postgraduate Certificate will provide students with the fundamentals of Telemedicine and its relationship with Artificial Intelligence to improve the quality of life of patients. The syllabus will cover aspects such as the e-Health Platform, Remote Analysis of Results or the Chatbox interface. In this way, the students will perform functions such as the monitoring of users with cardiac pathologies and the diagnosis of diseases by images. The program will also delve into the Internet of Things in order to provide you with a technological infrastructure.





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You will use the most sophisticated technologies aimed at monitoring oncology patients, improving both their quality of life and the efficiency of the health care system”

Module 1. Applications of Artificial Intelligence and the Internet of Things (IoT) in Telemedicine

- 1.1. E-Health Platforms. Personalizing Healthcare Services
 - 1.1.1. e-Health Platforms:
 - 1.1.2. Resources for e-Health Platforms
 - 1.1.3. Digital Europe Program. Digital Europe-4-Health and Horizon Europe
- 1.2. Artificial Intelligence in Healthcare I: New Solutions in Computer Applications
 - 1.2.1. Remote Analysis of Results
 - 1.2.2. Chatbox
 - 1.2.3. Prevention and Real-Time Monitoring
 - 1.2.4. Preventive and Personalized Medicine in Oncology
- 1.3. Artificial Intelligence in Healthcare II:
 - 1.3.1. Monitoring Patients with Reduced Mobility
 - 1.3.2. Cardiac Monitoring, Diabetes, Asthma
 - 1.3.3. Health and Wellness Apps
 - 1.3.3.1. Heart Rate Monitors
 - 1.3.3.2. Blood Pressure Bracelets
 - 1.3.4. Ethical Use of AI in the Medical Field. Data Protection
- 1.4. Artificial Intelligence Algorithms for Image Processing
 - 1.4.1. Artificial Intelligence Algorithms for Image Handling
 - 1.4.2. Image Diagnosis and Monitoring in Telemedicine
 - 1.4.2.1. Melanoma Diagnosis
 - 1.4.3. Limitations and Challenges in Image Processing in Telemedicine
- 1.5. Application Acceleration using Graphics Processing Units (GPU) in Medicine
 - 1.5.1. Program Parallelization
 - 1.5.2. GPU Operations
 - 1.5.3. Application Acceleration using GPU in Medicine
- 1.6. Natural Language Processing (NLP) in Telemedicine
 - 1.6.1. Text Processing in the Medical Field. Methodology
 - 1.6.2. Natural Language Processing in Therapy and Medical Records
 - 1.6.3. Limitations and Challenges in Natural Language Processing in Telemedicine





- 1.7. The Internet of Things (IoT) in Telemedicine. Applications
 - 1.7.1. Monitoring Vital Signs. Wearables
 - 1.7.1.1. Blood Pressure, Temperature, and Heart Rate
 - 1.7.2. The IoT and Cloud Technology
 - 1.7.2.1. Data Transmission to the Cloud
 - 1.7.3. Self-Service Terminals
- 1.8. IoT in Patient Monitoring and Care
 - 1.8.1. IoT Applications for Emergency Detection
 - 1.8.2. The Internet of Things in Patient Rehabilitation
 - 1.8.3. Artificial Intelligence Support in Victim Recognition and Rescue
- 1.9. Nano-Robots. Typology
 - 1.9.1. Nanotechnology
 - 1.9.2. Types of Nano-Robots
 - 1.9.2.1. Assemblers. Applications
 - 1.9.2.2. Self-Replicating. Applications
- 1.10. Artificial Intelligence in COVID-19 Control
 - 1.10.1. COVID-19 and Telemedicine
 - 1.10.2. Management and Communication of Breakthroughs and Outbreaks
 - 1.10.3. Outbreak Prediction in Artificial Intelligence



You can access the virtual platform at the time of your choice and you can even download the didactic contents to consult them whenever you want"

05

Study Methodology

TECH is the world's first university to combine the **case study** methodology with **Relearning**, a 100% online learning system based on guided repetition.

This disruptive pedagogical strategy has been conceived to offer professionals the opportunity to update their knowledge and develop their skills in an intensive and rigorous way. A learning model that places students at the center of the educational process giving them the leading role, adapting to their needs and leaving aside more conventional methodologies.





TECH will prepare you to face new challenges in uncertain environments and achieve success in your career”

The student: the priority of all TECH programs

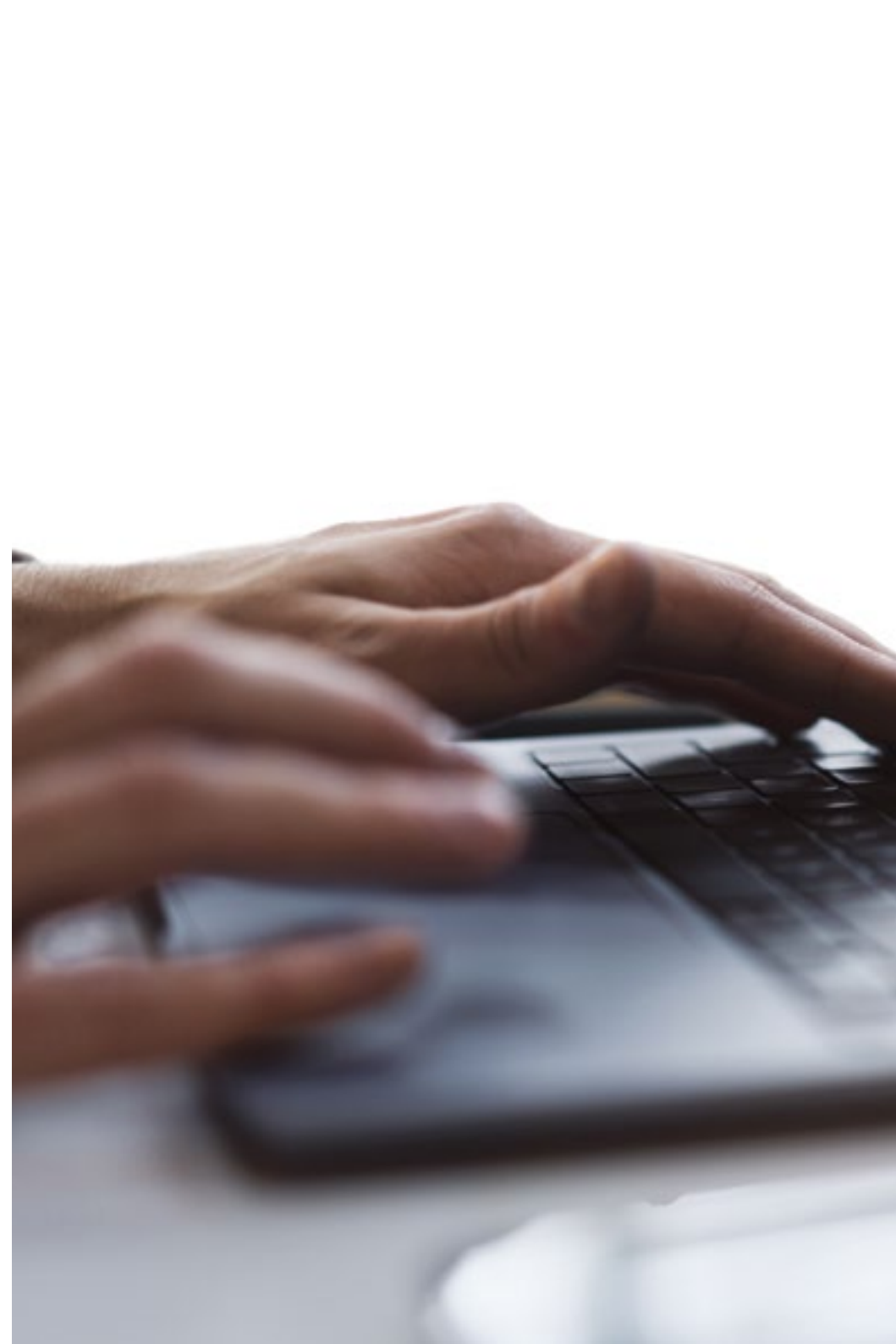
In TECH's study methodology, the student is the main protagonist.

The teaching tools of each program have been selected taking into account the demands of time, availability and academic rigor that, today, not only students demand but also the most competitive positions in the market.

With TECH's asynchronous educational model, it is students who choose the time they dedicate to study, how they decide to establish their routines, and all this from the comfort of the electronic device of their choice. The student will not have to participate in live classes, which in many cases they will not be able to attend. The learning activities will be done when it is convenient for them. They can always decide when and from where they want to study.

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*At TECH you will NOT have live classes
(which you might not be able to attend)”*



The most comprehensive study plans at the international level

TECH is distinguished by offering the most complete academic itineraries on the university scene. This comprehensiveness is achieved through the creation of syllabi that not only cover the essential knowledge, but also the most recent innovations in each area.

By being constantly up to date, these programs allow students to keep up with market changes and acquire the skills most valued by employers. In this way, those who complete their studies at TECH receive a comprehensive education that provides them with a notable competitive advantage to further their careers.

And what's more, they will be able to do so from any device, pc, tablet or smartphone.

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TECH's model is asynchronous, so it allows you to study with your pc, tablet or your smartphone wherever you want, whenever you want and for as long as you want”

Case Studies and Case Method

The case method has been the learning system most used by the world's best business schools. Developed in 1912 so that law students would not only learn the law based on theoretical content, its function was also to present them with real complex situations. In this way, they could make informed decisions and value judgments about how to resolve them. In 1924, Harvard adopted it as a standard teaching method.

With this teaching model, it is students themselves who build their professional competence through strategies such as Learning by Doing or Design Thinking, used by other renowned institutions such as Yale or Stanford.

This action-oriented method will be applied throughout the entire academic itinerary that the student undertakes with TECH. Students will be confronted with multiple real-life situations and will have to integrate knowledge, research, discuss and defend their ideas and decisions. All this with the premise of answering the question of how they would act when facing specific events of complexity in their daily work.



Relearning Methodology

At TECH, case studies are enhanced with the best 100% online teaching method: Relearning.

This method breaks with traditional teaching techniques to put the student at the center of the equation, providing the best content in different formats. In this way, it manages to review and reiterate the key concepts of each subject and learn to apply them in a real context.

In the same line, and according to multiple scientific researches, reiteration is the best way to learn. For this reason, TECH offers between 8 and 16 repetitions of each key concept within the same lesson, presented in a different way, with the objective of ensuring that the knowledge is completely consolidated during the study process.

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.



A 100% online Virtual Campus with the best teaching resources

In order to apply its methodology effectively, TECH focuses on providing graduates with teaching materials in different formats: texts, interactive videos, illustrations and knowledge maps, among others. All of them are designed by qualified teachers who focus their work on combining real cases with the resolution of complex situations through simulation, the study of contexts applied to each professional career and learning based on repetition, through audios, presentations, animations, images, etc.

The latest scientific evidence in the field of Neuroscience points to the importance of taking into account the place and context where the content is accessed before starting a new learning process. Being able to adjust these variables in a personalized way helps people to remember and store knowledge in the hippocampus to retain it in the long term. This is a model called Neurocognitive context-dependent e-learning that is consciously applied in this university qualification.

In order to facilitate tutor-student contact as much as possible, you will have a wide range of communication possibilities, both in real time and delayed (internal messaging, telephone answering service, email contact with the technical secretary, chat and videoconferences).

Likewise, this very complete Virtual Campus will allow TECH students to organize their study schedules according to their personal availability or work obligations. In this way, they will have global control of the academic content and teaching tools, based on their fast-paced professional update.



The online study mode of this program will allow you to organize your time and learning pace, adapting it to your schedule”

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 assess 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.

The university methodology top-rated by its students

The results of this innovative teaching model can be seen in the overall satisfaction levels of TECH graduates.

The students' assessment of the teaching quality, the quality of the materials, the structure of the program and its objectives is excellent. Not surprisingly, the institution became the top-rated university by its students according to the global score index, obtaining a 4.9 out of 5.

Access the study contents from any device with an Internet connection (computer, tablet, smartphone) thanks to the fact that TECH is at the forefront of technology and teaching.

You will be able to learn with the advantages that come with having access to simulated learning environments and the learning by observation approach, that is, Learning from an expert.



As such, the best educational materials, thoroughly prepared, will be available in this program:



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.



Practicing Skills and Abilities

You will carry out activities to develop specific competencies and skills in each thematic field. Exercises and activities to acquire and develop the skills and abilities that a specialist needs to develop within the framework of the globalization we live in.



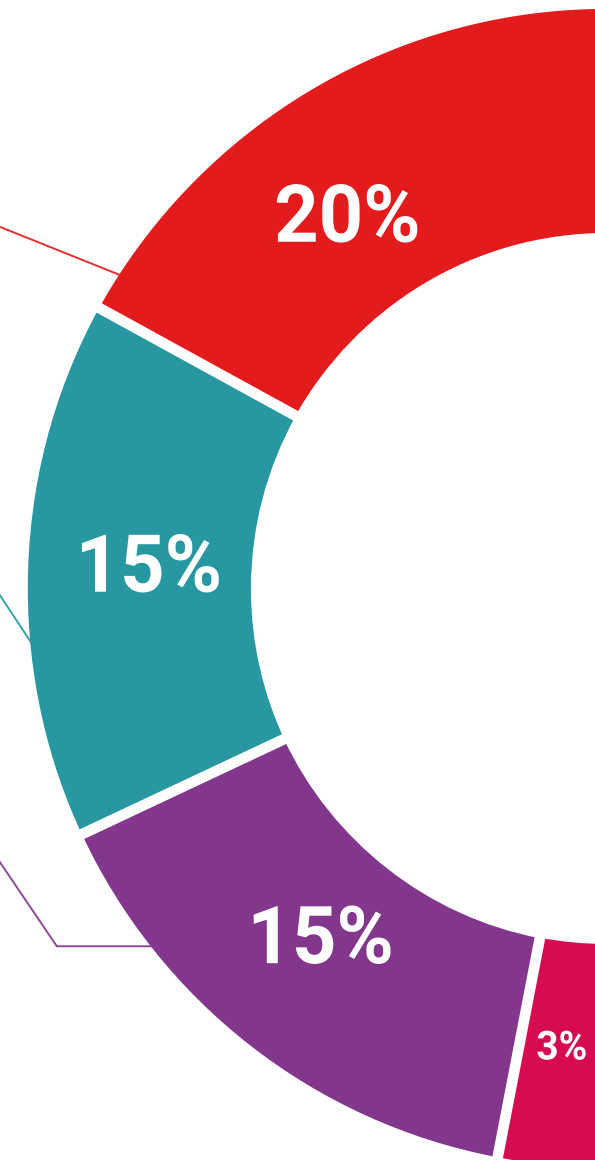
Interactive Summaries

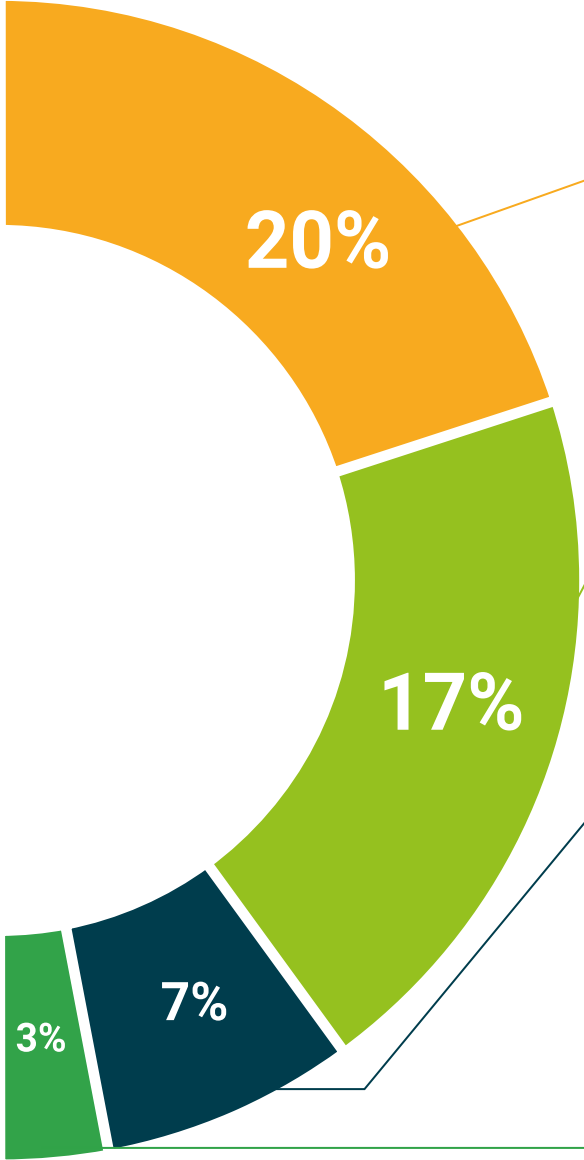
We present the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge. This exclusive educational system for presenting multimedia content was awarded by Microsoft as a "European Success Story".



Additional Reading

Recent articles, consensus documents, international guides... In our virtual library you will have access to everything you need to complete your education.





Case Studies

Students will complete a selection of the best case studies in the field. Cases that are presented, analyzed, and supervised by the best specialists in the world.



Testing & Retesting

We periodically assess and re-assess your knowledge throughout the program. We do this on 3 of the 4 levels of Miller's Pyramid.



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 for 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 Artificial Intelligence and IoT Applications in Telemedicine guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Certificate issued by TECH Global University.



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

This private qualification will allow you to obtain a **Postgraduate Certificate in Artificial Intelligence and IoT Applications in Telemedicine** 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** private qualification 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 Artificial Intelligence and IoT Applications in Telemedicine**

Modality: **online**

Duration: **6 weeks**

Accreditation: **6 ECTS**



future
health confidence people
education information tutors
guarantee accreditation teaching
institutions technology learning
community commitment
personalized service innovation
knowledge present
development languages
virtual classroom



Postgraduate Certificate Artificial Intelligence and IoT Applications in Telemedicine

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