Postgraduate Diploma

ICT Applications in Digital Health

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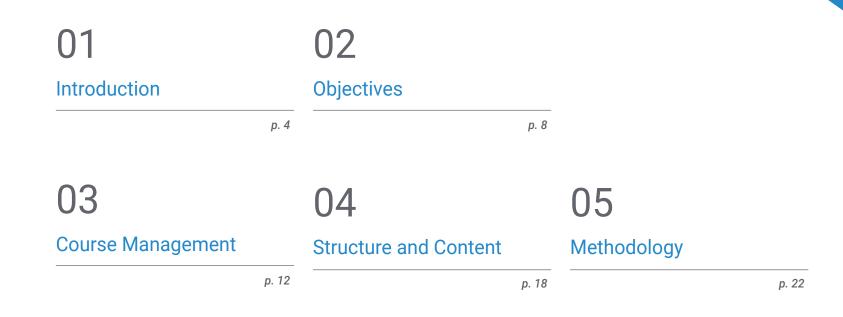
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Postgraduate Diploma
ICT Applications in Digital Health

Course Modality: **Online**
Duration: **6 months.**

Certificate: **TECH - Technological University**

18 ECTS Credits

Teaching Hours: **450 h.**

Website: **www.techtitute.com/us/medicine/postgraduate-diploma/postgraduate-diploma-ict-applications-digital-health**

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01
Introduction

The program design guides professionals in the process of creating ICT projects for the health secotr, the different existing models and the strategies that can be carried out. Furthermore, students will be able to delve into the importance of interoperability in the field of health in order to choose the most appropriate tools to meet the challenge of developing processes that require interoperability. Moreover, the program will cover the usefulness of data science in the field of health, showing the different problems that can arise in this discipline. Professionals will also delve into the importance of big data and the different types of analysis models to be applied in the field of digital health.

"With this Postgraduate Diploma you will master ICT Applications for Digital Health, an environment that ranks today's best doctors"

Digital information systems have become the basis for integrating any strategy of change toward health, as they modulate the provision and measurement of outcomes in terms of the relative preferences of decision-makers. Information and Communication Technologies provide solutions to problems related to agent risk choices in the presence of information asymmetries. Thanks to this program, students will deepen their understanding of the importance of interoperability in the health sector in order to be able to choose the most appropriate solutions to the challenge of developing processes that require interoperability. Similarly, students will be able to recognize the different standards defined for the field of health and will learn about the concept of health ontology and its importance in the field of digital health.

This Postgraduate Diploma also introduces students to data science and Big Data. It presents all matters behind and related to problems, applications, Big Data systems, Artificial Intelligence and the Internet of Things (IoT). It establishes, in turn, the usefulness of data science in the field of health, showing different problems that can arise in this discipline. Thus, professionals will delve into the importance of big data and the different types of analysis models.

Student will explore the right data questions to ask, communicate effectively with data scientists, and carry out deep examinations of large and complex datasets.

The program design guides professionals in the necessary process of creating ICT projects in the health sector, including the different models and strategies that can be carried out. It covers problem analysis or need-based ICT problems in the health sector as well as the different fields where telemedicine is already implemented.

The extensive experience and training our teaching staff has in this area of medicine positions this Postgraduate Diploma above others on the market, providing graduates with a reference of excellence. Both the course management and the teaching staff will put their knowledge and professional experience at the disposal of students in a practical manner.

It is also a 100% online Postgraduate Diploma that provides professionals with the ease of being able to study it comfortably, wherever and whenever they want. All you need is a device with internet access to take your career one step further. A modality in line with present times, with a TECH guarantee of future projection.

This **Postgraduate Diploma in ICT Applications in Digital Health** contains the most complete and up-to-date educational program on the market. The most important features include:

- The development of case studies presented by Telemedicine experts.
- 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.
- Practical exercises where self-assessment can be used to improve learning.
- Its special emphasis on innovative methodologies
- Theoretical lessons, questions to the expert, debate forums on controversial topics, and individual reflection assignments.
- Content that is accessible from any fixed or portable device with an Internet connection

Increase your professional opportunities with this Postgraduate Diploma and boost the digital health projects of the future"

Did you know that Telemedicine effectively serves the prediction, prevention and diagnosis of patient? Discover more with this Postgraduate Diploma"

Patient-centered Artificial Intelligence: Neural Networks, Chatbots and Machine Learning.

You will develop successful strategies for implementing telemedicine projects, evaluating their application in the health sector.

The program includes, in its teaching staff, professionals from the sector who bring to this program the experience from their work, in addition to recognized specialists from prestigious reference societies and 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 training programmed to train 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 professional will be assisted by an innovative interactive video system created by renowned and experienced engineering experts.

02
Objectives

The program design will allow students to delve deeper into Health Information Systems and Telemedicine, understand the usefulness of data analysis for decision making (MEB), delve into the knowledge and skills required for need-based anaylisis for health professionals and the health sector, and provide solutions through ICT projects. In this way, you will bring your professional profile up to date and boost your career to a position demanded by patients and the current healthcare system, both public and private, given the current pandemic situation. The program has been designed by a team of experts whose syllabus will enable future graduates to achieve the proposed objectives established by TECH in conjunction with CEU.

Discover the process of designing a healthcare technology project and succeed in the medical field of the future"

General Objectives

- Deepen understanding of the environment in which a telemedicine service is developed, including the challenges as well as the limitations and areas of opportunity
- Delve into the ethical, legal, technical and medical aspects of creating and implementing a telemedicine project
- Gain a deeper understanding of the different areas of use of ICTs in health care
- Master the new techniques and technologies that are emerging to better serve patients and their needs
- Further the analysis, development, implementation and evaluation of health and telemedicine projects
- Identify the political, social, legal, technological and economic fundamentals and dimensions for the implementation of ICT in health systems
- In-depth study of the ethical and legal aspects of attending a patient by telematic means
- Delve into the importance of digital interoperability in healthcare and the application of standards for its implementation
- Recognize the importance of empowering patients and healthcare stakeholders in the world of digital health
- Master learning and differentiate between reliable and unreliable sources of information
- Learn the main aspects of project evaluation and its technical dimensions
- Obtain skills for the clinical application of technologies

Specific Objectives

Module 1.
- Deepen understanding of how health and telemedicine information systems work
- Develop the use of standards and project interoperability as an element of integration
- Further understanding of the concept of ontologies and semantic terms, including the most commonly used ones

Module 2.
- Delve into the advanced technological features that can be integrated into telemedicine
- Understand both the operation and the objectives of the use of these features
- Understand the usefulness of data analysis for decision making (MEB)
- Correctly use the system environment of advanced information data to information with its projection and then on to knowledge and wisdom

Module 3.
- Deepen the knowledge and skills for the analysis of the needs of health professionals and the health sector, to provide solutions through ICT projects
- Delve into the process by which a technological project is designed for the healthcare sector
- Master the process by which the implementation of an ICT project is carried out
- Deepen knowledge for the evaluation of ICT projects
- Explore in depth the different areas and sectors where telemedicine is in operation

03
Course Management

This program has a highly qualified team with extensive experience in the field, which will offer students the best tools to gain solid knowledge in ICT Applications in Health. In its maxim of offering quality education aimed at excellence, TECH has the best professionals in this medical field for students to effectively develop their skills during the course. Thus, students have the guarantee required to specialize in a booming field that will catapult them to professional success, also contributing to the development of medical functions in a sustainable and responsible way, while offering personalized patient care.

" *Top experts in the field will teach you about the latest emerging artificial intelligence applications used in healthcare"*

Management

Dr. Serrano Aísa, Pedro Javier

- Consultant physician in the area of Cardiology of the Aragonese Health Service Since 2000 he has been working at the Hospital Clínico Universitario de Zaragoza
- Associate Professor ASP4 of the area of Physiology and Pharmacology of the Faculty of Medicine of Zaragoza
- Cardiology care at the ADESLAS Zaragoza Medical Center and at the MAZ Center in Ejea de Los Caballeros
- Head of the Cardiology Department of Viamed Montecanal Hospital, Zaragoza, Spain
- Director of Cardiomoncayo S.L. (primarily providing Cardiological health care services)
- Degree in Medicine and Surgery from the University of Zaragoza
- Doctor of Medicine and Surgery from the University of Zaragoza

Co-Direction

Dr. Achkar Tuglaman, Nesib Nicolás

- Director of Clinical Telemedicine at AtrysHealth
- Co-founder of the International Telemedicine Hospital
- Associate Professor in Biomedical Engineering at the Carlos III University of Madrid
- Specialist in Family and Community Medicine
- Degree in Medicine from the University of Navarra
- Professional Master's Degree in Medical Research from the University of Zaragoza
- Master's Degree in Telemedicine from the University Oberta de Catalunya (UOC)

Co-Direction

Dr. Sánchez Bocanegra, Carlos Luis

- Head of the IT Department of the Junta de Andalucía (Regional Government of Andalusia)
- Collaborating Professor at the University of Distance Education (UNED) and the Open University of Catalonia (UOC)
- Director of several Professional Master's Degree Final Projects at the University Hospital Italiano in Argentina and the School of Medicine at the University of Antioquia
- PhD in Computer Engineering from the University of Seville, specializing in Medical Informatics and Health
- Master's Degree in Free Software by the Open University of Catalonia (UOC)
- Computer Management Engineer from the University of Malaga (UMA)
- Graduate in Information Systems Engineering from the Catholic University of Avila (UCAV)
- Member of HOPE (Health Operation for Personalized Evidence) project group and of the Anti-Vaccine Project Author of several articles on patients, social networks and social media applied to health Currently focused on Big Data and Artificial Intelligence applied to health and medical informatics

Professors

Mr. Passadore, Nicolás

- Member of the Interdisciplinary Research Group HOPE, which has members from Spain, Mexico and Argentina, with a focus on Big Data and Artificial Intelligence applied to health and medical computing
- Project leader of the Digital Transformation of several hospitals, from the design, development and implementation of the IT system
- Degree in Computer Science
- Professional Master's Degree in Telemedicine (UOC) and Professional Master's Degree in Big Data and Business Intelligence
- Specialist in Medical Informatics, with more than 15 years of experience in the field

Dr. Chacón Vargas, Karla Azucena

- State Coordinator of Telehealth for the Ministry of Health of Chihuahua
- Collaborating professor of the Professional Master's Degree in Digital Health at the University Oberta de Catalunya
- Leader of international research projects in digital health based on artificial intelligence, with Universities and Health Institutions in Argentina, Denmark, Spain and the United States
- WHO collaborator as a health document reviser / auditor
- Diabetes Educator from the Autonomous University of Chihuahua
- Degree in Medical Surgery from the Autonomous University of Ciudad Juarez
- Master in Telemedicine from the University Oberta de Catalunya (UOC)
- Certified by PAHO in the operational model for Telemedicine
- Author of teaching material for the Professional Master's Degree in Digital Health from University Oberta de Catalunya Author of book chapter ´Open data is the means to innovate in health´ for UNAM and CONACYT

Professors

Ms. Gómez Navarro, Cristina

- Responsible for the launch of Ecosistema Más Empresa
- Banking professional since 2007, expert in communication and entrepreneurship
- Law Degree from the University of Zaragoza
- Master's Degree in Digital Marketing from ESIC and ISO Certification in Customer Experience

"Our teaching team will provide you with all their knowledge so that you are up to date with the latest information on the subject"

04
Structure and Content

The Postgraduate Diploma content has been designed for professionals to master ICT Applications in Digital Health to become experts in this field of Telemedicine. Patient care has become an essential exercise for any doctor today, accelerated by the current pandemic situation, so a digital strategy in telemedicine is essential. The content has been structured in three modules that include all the necessary information for students to delve into the new digital medical concepts, incorporating all the elements that may be involved in developing their functions and performance in health. The first module of the syllabus deals with health information systems, while the second focuses on data analysis, Big Data in healthcare, traceability and Artificial Intelligence. Finally, the third module is aimed at the strategy, implementation and evaluation of telemedicine projects for students to prosper in this area of the discipline.

"

Go digital and get into health information systems, the medicine of the future"

Module 1. Health Information Systems

1.1. Health Information Systems
1.2. Healthcare Information Systems (HIS)
1.3. Health Information Systems within an International Framework
1.4. Information Systems and their Relationships
1.5. Health Models
1.6. The Clinical Layer of Information Systems
1.7. Clinical Documentation
1.8. Interoperability in Healthcare
1.9. Syntactic and Semantic Digital Healthcare Standards
1.10. Ontologies and Terminologies in the Healthcare Field
    1.10.1. Main Semantic Ontologies
    1.10.2. The Functionality of Healthcare Ontologies

Module 2. Data Analytics, Big Data in Healthcare, Traceability, and Artificial Intelligence.

2.1. The Data
    2.1.1. Data Life Cycle
2.2. Application of Data Science and Big Data in Healthcare
2.3. State-of-the-art in Healthcare and Artificial Intelligence
    2.3.1. The Uses of AI in Healthcare
2.4. Blockchain Technology (Blockchain)
2.5. Virtual and Augmented Reality, the Internet of Things (IoT) and Home Automation
    2.5.1. The Uses of Virtual/Augmented Reality in Healthcare
    2.5.2. Uses of IoT in Healthcare
    2.5.3. Uses of Home Automation in Healthcare
2.6. Patient-centered Artificial Intelligence: Neural Networks, Chatbots, Machine Learning
2.7. Emerging Applications in Healthcare Using AI
    2.7.1. Leading Emerging Applications of AI in Healthcare
2.8. Bioinformatics
2.9. Semantic Web in Healthcare
    2.9.1. Languages Used in Semantic Terminology
2.10. AI Implementation Strategy

Module 3. Telemedicine Project Strategy, Implementation and Evaluation

3.1. Technological Innovation Models and their Application in the Health Sector
3.2. Healthcare Needs Analysis for the Creation of Projects
3.3. Design of Technological Projects for the Health Sector
3.4. Research Principles for Healthcare Technology Assessment
3.5. Viability of Healthcare Projects
3.6. Telemedicine Apps in the Healthcare Environment
3.7. Telemedicine for Immediate or Urgent Care
    3.7.1. Tele-Heart Attack
    3.7.2. Tele-Stroke
    3.7.3. Primary Care Consultation
3.8. Use of Telemedicine in Prediction, Prevention and Diagnosis
    3.8.1. Teledermatology
    3.8.2. Teleophthalmology
    3.8.3. Telecardiology
    3.8.4. Teleradiology
3.9. Telemedicine in Healthcare Intervention and Treatment
    3.9.1. Telerehabilitation
    3.9.2. Teleulcer
    3.9.3. Telesurgery
3.10. Application of Telemedicine in Specific Areas
    3.10.1. Mental Health
    3.10.2. Geriatrics
    3.10.3. Chronic Patients
    3.10.4. Rare Diseases
    3.10.5. Nursing

"This Postgraduate Diploma will teach you how to apply telemedicine in specific areas associated with mental health pathologies or chronic diseases"

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, 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 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

What should a professional do in a given situation? Throughout the program, students will face multiple simulated clinical cases, based on real patients, in which they will have to do research, establish hypotheses, and ultimately resolve the situation. There is an abundance of scientific evidence on the effectiveness of the method. Specialists learn better, faster, and more sustainably over time.

With TECH you will experience a way of learning that is shaking the foundations of traditional universities around the world.

According to Dr. Gérvas, the clinical case is the annotated presentation of a patient, or group of patients, which becomes a "case", an example or model that illustrates some peculiar clinical component, either because of its teaching power or because of its uniqueness or rarity. It is essential that the case is based on current professional life, trying to recreate the real conditions in the physician's professional practice.

Did you know that this method was developed in 1912, at Harvard, for law students? The case method consisted of presenting students with real-life, complex situations for them to make decisions and justify their decisions on how to solve them. In 1924, Harvard adopted it as a standard teaching method"

The effectiveness of the method is justified by four fundamental achievements:

1. Students who follow this method not only achieve the assimilation of concepts, but also a development of their mental capacity, through exercises that evaluate real situations and the application of knowledge.

2. Learning is solidly translated into practical skills that allow the student to better integrate into the real world.

3. Ideas and concepts are understood more efficiently, given that the example situations are based on real-life.

4. Students like to feel that the effort they put into their studies is worthwhile. This then translates into a greater interest in learning and more time dedicated to working on the course.
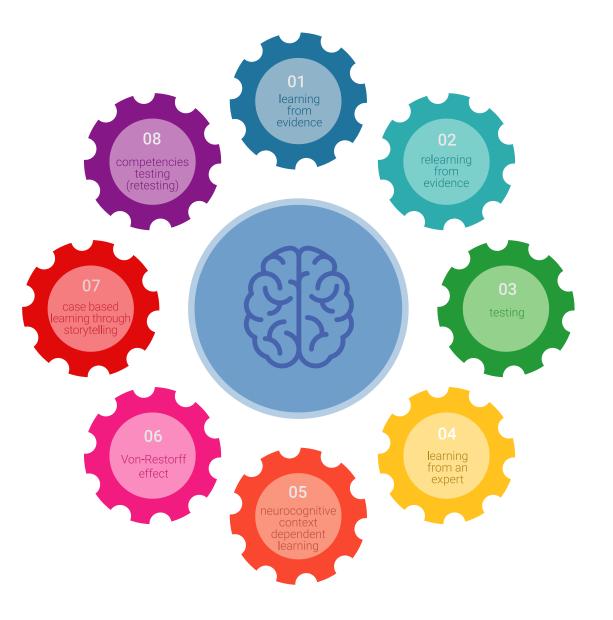
Re-learning Methodology

At TECH we enhance the Harvard case method with the best 100% online teaching methodology available: Re-learning.

This university is the first in the world to combine the study of clinical cases with a 100% online learning system based on repetition, combining a minimum of 8 different elements in each lesson, a real revolution with respect to the mere study and analysis of cases.

Professionals will learn through real cases and by resolving complex situations in simulated learning environments. These simulations are developed using state-of-the-art software to facilitate immersive learning.

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
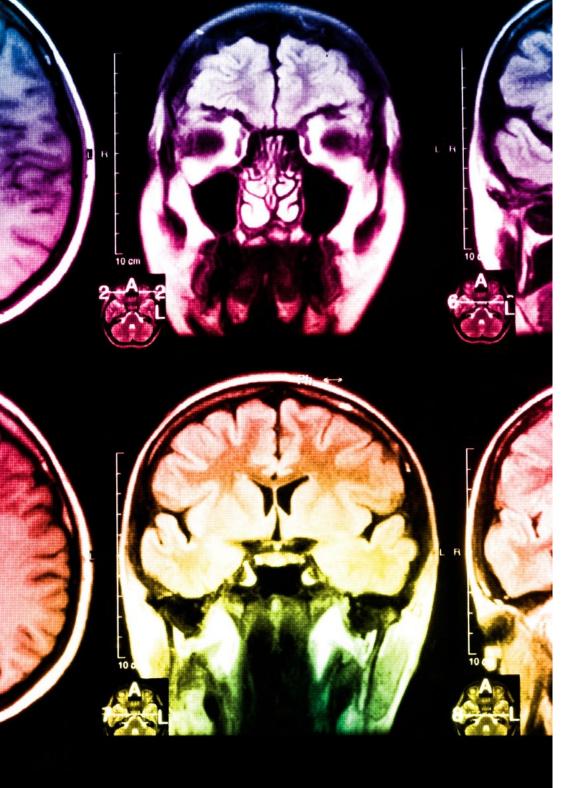
08 competencies testing (retesting)

At the forefront of world teaching, the 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, more than 250,000 physicians have been trained with unprecedented success in all clinical specialties regardless of surgical load. Our pedagogical methodology is developed in a highly competitive environment, with a university student body with a high socioeconomic profile and an average age of 43.5 years old.

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 (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.

Surgical Techniques and Procedures on Video

TECH introduces students to the latest techniques, the latest educational advances and to the forefront of current medical techniques. All of this in direct contact with students and explained in detail so as to aid their assimilation and understanding. And best of all, you can watch the videos as many times as you like.

Interactive Summaries

The TECH team presents the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

This exclusive multimedia content presentation training Exclusive system 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 your goals.

Classes

There is scientific evidence on the usefulness of learning by observing experts: The system termed Learning from an Expert strengthens knowledge and recall capacity, and generates confidence in the face of difficult decisions in the future.

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.

Certificate

The Postgraduate Diploma in ICT Applications in Digital Health guarantees, in addition to the most accurate and up-to-date training, access to a qualification issued by TECH - Technological University.

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

This **Postgraduate Diploma in ICT Applications in Digital Health** is the most complete and up-to-date scientific program on the market.

After the student has passed the evaluations, they will receive their corresponding **certificate** issued by **TECH - Technological University** via tracked delivery.

This qualification contributes significantly to the professional's continuing education and enhances their training with a highly regarded university syllabus, and is 100% valid for all public examinations, professional careers and job vacancies.

Title: **Postgraduate Diploma in ICT Applications in Digital Health**

ECTS: **18**

Official Number of Hours: **450**

tech technological university

Awards the following

DIPLOMA

to

Mr./Ms. _____, with identification number _____.
For having passed and accredited the following program

POSTGRADUATE DIPLOMA

in

ICT Applications in Digital Health

This is a qualification awarded by this University, with 18 ECTS credits and equivalent to 450 hours, with a start date of dd/mm/yyyy and an end date of dd/mm/yyyy.

TECH is a Private Institution of Higher Education recognized by the Ministry of Public Education as of June 28, 2018.

June 17, 2020

Tere Guevara Navarro
Dean

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 EDUCATION will make the necessary arrangements to obtain it, at an additional cost.

Postgraduate Diploma

ICT Applications in Digital Health

Course Modality: **Online**
Duration: **6 months.**

Certificate: **TECH - Technological University**

18 ECTS Credits

Teaching Hours: **450**

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ICT Applications in
Digital Health

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