Professional Master's Degree

E-Health and Big Data

tech global university

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Professional Master's Degree
E-Health and Big Data

- Modality: **online**
- Duration: **12 months**
- Certificate: **TECH Global University**
- Credits: **60 ECTS**
- Schedule: **at your own pace**
- Exams: **online**

Website: **www.techtitute.com/us/engineering/professional-master-degree/master-e-health-big-data**

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01

Introduction

Scientific advances go hand in hand with technological development. Today, healthcare is focused on safer and more personalized care, which applies health sciences, engineering and advances in R&D&I. Thanks to studies in these fields, a new concept of treatment has been formulated, which transcends from the use of organs or tissues created thanks to bioprinting, to the use of Big Data for disease control. Given the importance and speed of e-Health integration, the professional market is calling for experts who can unanimously put all their knowledge into practice. For this reason, TECH offers a program aimed at updating foundations in medicine oriented towards Information and Communication Technologies (ICT). A 100% online format, with downloadable materials that provide flexibility for students to adapt the pace of study to their personal and professional needs.

Thanks to this Professional Master's Degree, you will analyze how artificial intelligence influences pattern recognition in medical images"

The Professional Master's Degree in e-Health and Big Data aims to transmit the multiple benefits of technology in medicine. The concept of e-Health is defined by the World Health Organization (WHO) as: the cost-effective and safe use of information and communication technologies in support of health and public health related fields, including healthcare, health surveillance and health education, knowledge and research. Developments in this field make it possible, for example, to diagnose diseases thanks to hospital databases, or even to insert new 3D-printed limbs into human and animal bodies.

The imminent evolution of medicine requires highly qualified professionals who know how to respond to the needs of Industry 4.0. TECH aims to boost the careers of engineers who wish to delve into healthcare service and are interested in the simultaneous development of telemedicine. This Professional Master's Degree addresses the theoretical and practical foundations of modern medicine to generate a global and deep vision of the new additions in biomedicine.

Students will not only delve into aspects of E-Health and Big Data, but will also learn about how the international healthcare system operates and is organized. Likewise, this program offers a focus on the entrepreneurship sector that positions engineering graduates as the target audience of this digital education, encouraging the creation of their own companies with the keys to business innovation.

TECH will participate in the expansion of these studies through a Professional Master's Degree based on the knowledge of scientists in the field, especially those involved in artificial intelligence projects. The teaching staff will be available to students 24 hours a day and will monitor their studies. What is more, the 100% online format and the audiovisual content will facilitate student training and study.

This **Professional Master's Degree in E-Health and Big Data** contains the most complete and up-to-date program on the market. The most important features include:

- Practical cases presented by experts in Information and Communication Technology focused on the healthcare services
- 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
- 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

Distinguish yourself in a booming sector and join what is considered to be the technological solution of the future in medical development"

Join the change in modern medicine by applying artificial intelligence and the internet of things (IoT) to telemedicine"

Boost your career projection thanks to bioinformatics computing and Big Data techniques.

Update your biomedical knowledge thanks to new tools used in clinical health management.

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 education programmed to prepare 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 course. For this purpose, the student will be assisted by an innovative interactive video system created by renowned and experienced experts.

02

Objectives

The approach of this Professional Master's Degree in E-Health and Big Data will allow students to acquire the necessary skills to update their knowledge in the field of medical engineering. By delving into the technical aspects of hospital systems and mastering the tools to implement biomedical design in healthcare, students will boost their professional career from a global perspective of new technologies. Through the program, they will develop the necessary skills in an engineering field that is versatile and directly related to today's public health services.

TECH's goal is to foster the development of experts like you, who delve into nuclear medicine to identify the differences between PET and SPECT"

General Objectives

- Develop 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
- Identify 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
- Develop 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
- Delve into 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
- Collect e-Health success stories and mistakes to avoid
- Apply the knowledge acquired to an original business idea

Get closer to excellence with theoretical and practical tools that will help you make decisions in real life"

Specific Objectives

Module 1. Molecular Medicine and Pathology Diagnosis

- Understand the diseases of the circulatory and respiratory systems
- Determine the general pathology of the digestive and urinary apparatus, of the endocrine and metabolic systems and of the nervous system
- Generate expertise in diseases affecting the blood and the locomotor system

Module 2. Health System Management and Administration in Health Centers

- Determine what a health system is
- Analyze the different healthcare models in Europe
- Examine how the healthcare market functions
- Develop key knowledge of hospital design and architecture
- Generate specialized knowledge of health measures
- Delve into resource allocation methods
- Compile productivity management methods
- Establish the role played by Project Managers

Module 3. Research in Health Sciences

- Determine the need for scientific research
- Interpret scientific methodology
- Specify the need for types of research in health sciences depending on their context
- Establish the principles of evidence-based medicine
- Examine the needs to interpret scientific results
- Develop and interpret the basics of clinical trials
- Examine the methodology used to disseminate scientific research results and the ethical and legislative principles that govern it

Module 4. Techniques, Recognition and Intervention using Biomedical Imaging

- 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 an in-depth understanding of the direct relationship between surgical interventions and imaging techniques
- Establish the possibilities offered by artificial intelligence in the recognition of patterns in medical images, thereby furthering innovation in the sector

Module 5. Computation in Bioinformatics

- Understand the concept of computation
- Break down a computer system into its various parts
- Distinguish between the concepts of computational biology and bioinformatics computing
- Master the most commonly used tools in the field
- Determine future trends in computing
- Analyze biomedical datasets using Big Data techniques

Module 6. Biomedical Databases

- Understand the concept of biomedical information databases
- Examine the different types of biomedical information databases
- Study data analysis methods in depth
- Compile models that are useful in predicting outcomes
- Analyze patient data and organize it logically
- Perform reports based on large amounts of data
- Determine the main lines of research and testing
- Utilize tools for bioprocess engineering

Module 7. Big Data in Medicine: Massive Medical Data Processing

- Gain specialized knowledge of massive data acquisition techniques in biomedicine
- Analyze the importance of data preprocessing in Big Data
- Determine the differences between the data derived from different massive data collection techniques, as well as their special characteristics in terms of pre-processing and handling
- Provide ways of interpreting results from massive data analysis
- Examine the applications and future trends in the field of Big Data in biomedical research and public health

Module 8. Applications of Artificial Intelligence and the Internet of Things (IoT) in Telemedicine

- 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
- Identify the optimization brought by parallelization in GPU-accelerated applications and its use in healthcare
- Present all the Cloud technologies available to implement e-Health and the IoT products, both in computing and communication

Module 9. Telemedicine and Medical, Surgical and Biomechanical Devices

- Analyze the evolution of telemedicine
- Assess the benefits and limitations of telemedicine
- Examine the different types, use and clinical benefits of telemedicine
- Assess the most common ethical issues and regulatory frameworks surrounding telemedicine
- Establish the use of medical devices in healthcare in general and in telemedicine specifically
- Determine the use of the Internet and the medical resources it provides
- Delve into the main trends and future challenges in telemedicine

Module 10. Business Innovation and Entrepreneurship in E-Health

- Analyze the e-Health market in a systematic and structured way
- Learn the key concepts of innovative ecosystems
- Create businesses using the Lean Startup methodology
- Analyze the market and competitors
- Find a solid value proposition in the marketplace
- Identify opportunities and minimize rates of error
- Handle practical tools to analyze the environment and to quickly test and validate business ideas

03

Skills

The structure of this Professional Master's Degree has been distributed in such a way that, upon completing it, students will have mastered health systems and the devices it uses. TECH guarantees the assimilation of this knowledge with a professional team that will offer adequate learning for students to excel in their line of work. In this way, the user will be able to handle the diagnostic systems and even participate in the phases of an experimental design, knowing the applicable regulations These skills are in demand in the field of technological innovation and will position students as ideal candidates when looking for opportunities in today's scientific sectors.

The skills that you will acquire after completing this Professional Master's Degree will provide you with possibilities in the field of Information and Communication Technologies (ICT)"

General Skills

- Learn to analyze how the international health system functions and will become familiar with common medical processes
- Acquire an analytical and critical view of medical devices
- Gain the skills to examine the principles of medical imaging and its applications
- Properly analyze the challenges and threats of imaging and how to overcome them
- Develop a thorough understanding of the operation, uses, and scope of bioinformatics systems
- Interpret and communicate results in scientific research
- Computerize medical processes with an understanding of the most powerful and common tools used
- Participate in the phases of an experimental design while observing the applicable regulations and the steps to be followed
- Analyze massive patient data to provide concrete and clear information for medical decision-making
- Use diagnostic systems to generate medical images, understanding their physical principles, use and scope
- Develop a global vision of the e-Health sector, with entrepreneurial input, which will facilitate the creation and development of entrepreneurial ideas

Specific Skills

- Obtain a complete vision of research and development methods in the field of telemedicine
- Integrate massive data analysis, "Big Data", in many traditional models
- Discover the possibilities that integrating Industry 4.0 and IoT opens
- Recognize various image acquisition techniques, while grasping the physics behind each modality
- Analyze the general operation of a computerized data processing system from hardware to software
- Recognize DNA analysis systems
- Gain an in-depth understanding of the biomedical research modalities where the Big Data approach is used, and the characteristics of the data utilized
- Establish the differences in terms of data processing in each of these modalities in biomedical research
- Propose models adapted to artificial intelligence use cases
- Occupy a privileged position when looking for business or research opportunities

04

Course Management

Given the scientific interest in new technologies and their application in other sciences, TECH has called on a professional team trained in Biomedical Engineering, Medicine, Biotechnology, Intelligence and Innovation. The teachers on the team, who are professionally devoted to the field of medical computing, endorse digital teaching. A 100% online training program that includes downloadable materials, fully utilizing the Internet for knowledge transmission. In this way, TECH enables students to expand their technical knowledge with the help and optimal monitoring of experts in the field.

Increase your skills with the support of a professional team that will be at your disposal 24 hours a day to solve all the doubts that may arise"

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

Dr. Somolinos Simón, Francisco Javier

- Biomedical Engineering Researcher at the Bioengineering and Telemedicine Group of the Polytechnic University of Madrid
- R&D&I Consultant at Evalue Innovation
- Biomedical Engineering Researcher at the Bioengineering and Telemedicine Group of the Polytechnic University of Madrid
- D. in Biomedical Engineering from the Polytechnic University of Madrid
- Graduate in Biomedical Engineering from the Polytechnic University of Madrid
- Master's Degree in Management and Development of Biomedical Technologies from Carlos III University of Madrid

Ms. Muñoz Gutiérrez, Rebeca

- Data Scientist at INDITEX
- Firmware Engineer for Clue Technologies
- Graduate in Health Engineering, specializing in Biomedical Engineering, University of Malaga and 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 GPUs

Ms. Crespo Ruiz, Carmen

- Intelligence, Strategy and Privacy Analysis Specialist
- Director of Strategy and Privacy at Freedom&Flow SL
- Co-founder of Healthy Pills SL
- Innovation Consultant & Project Technician. CEEI CIUDAD REAL
- Co-founder of Thinking Makers
- Data protection consultancy and training. Tangente Cooperative Group
- University Teacher
- Law Degree, UNED (National University for Distance Education)
- Degree in Journalism, University Pontificia of Salamanca
- Master's Degree in Intelligence Analysis, Carlos III and Rey Juan Carlos Universities, with the endorsement of the National Intelligence Center-CNI)
- Advanced Executive Program on Data Protection Officer

Mr. Piró Cristobal, Miguel

- E-Health Support Manager at ERN Transplantchild
- Electromedical Technician. Electromedical Business Group GEE
- Data and Analysis Specialist - Data and Analysis Team. BABEL
- Biomedical Engineer at MEDIC LAB. UAM
- Director of External Affairs CEEIBIS
- Degree in Biomedical Engineering, Carlos III University of Madrid
- Master's Degree in Clinical Engineering Carlos III University of Madrid
- Master's Degree in Financial Technologies: Fintech Carlos III University of Madrid
- Training in Data Analysis in Biomedical Research. La Paz University Hospital
-

Ms. Ruiz de la Bastida, Fátima

- Data Scientist at IQVIA
- Specialist in the Bioinformatics Unit of the Institute for Health Research Jiménez Díaz Foundation
- Oncology Researcher at the La Paz University Hospital
- Graduate in Biotechnology, University of Cadiz
- Master's Degree in Bioinformatics and Computational Biology, Autonomous University of Madrid
- Specialist in Artificial Intelligence and Data Analysis at the University of Chicago

Mr. Varas Pardo, Pablo

- Biomedical Engineer Expert Data Scientist
- Data Scientist. Institute of Mathematical Sciences (ICMAT)
- Biomedical Engineer, La Paz Hospital
- Graduate in Biomedical Engineering from the Polytechnic University of Madrid
- Internship at 12 de Octubre Hospital
- Master's Degree in Technological Innovation in Health, UPM and Higher Technical Institute of Lisbon
- Master's Degree in Biomedical Engineering Polytechnic University of Madrid

Dr. Pacheco Gutiérrez, Victor Alexander

- Specialist in Orthopedics and Sports Medicine, Dr. Sulaiman Al Habib Hospital
- Medical Advisor, Venezuelan Cycling Federatio
- Specialist, Department of Shoulder and Elbow Orthopedics and Sports Medicine, La Isabelica Clinical Center
- Medical advisor to several baseball clubs and to the Carabobo Boxing Association
- Degree in Medicine, University of Carabobo
- Specialty in Orthopedics and Traumatology, Dr. Enrique Tejera Hospital City

Make the most of this opportunity to learn about the latest advances in this area in order to apply it to your daily practice”

05

Structure and Content

The contents of this program have been carefully designed by a team of professionals who have contributed their knowledge based on the branches of health sciences and communication. Thanks to their contribution, the student will understand in a simple and educational way the subject matter, which transcends from clinical medicine to business innovation and entrepreneurship in e-Health. To that end, TECH applies the Relearning methodology, which offers guarantees of study by allowing for a gradual assimilation of theoretical and practical content.

A program developed by experts in health sciences who provide quality content to transfer the appropriate knowledge"

Module 1. Molecular Medicine and Pathology Diagnosis

1.1. Molecular Medicine
- 1.1.1. Cellular and Molecular Biology. Cell Injury and Cell Death. Aging
- 1.1.2. Diseases Caused by Microorganisms and Host Defence
- 1.1.3. Autoimmune Diseases
- 1.1.4. Toxicological Diseases
- 1.1.5. Hypoxia Diseases
- 1.1.6. Diseases related to the Environment
- 1.1.7. Genetic Diseases and Epigenetics
- 1.1.8. Oncological Diseases

1.2. Circulatory System
- 1.2.1. Anatomy and Function
- 1.2.2. Myocardial Diseases and Heart Failure
- 1.2.3. Cardiac Rhythm Diseases
- 1.2.4. Valvular and Pericardial Diseases
- 1.2.5. Atherosclerosis, Arteriosclerosis and Arterial Hypertension
- 1.2.6. Peripheral Arterial and Venous Disease
- 1.2.7. Lymphatic Disease (Greatly Overlooked)

1.3. Respiratory Diseases
- 1.3.1. Anatomy and Function
- 1.3.2. Acute and Chronic Obstructive Pulmonary Diseases
- 1.3.3. Pleural and Mediastinal Diseases
- 1.3.4. Infectious Diseases of the Pulmonary Parenchyma and Bronchi
- 1.3.5. Pulmonary Circulation Diseases

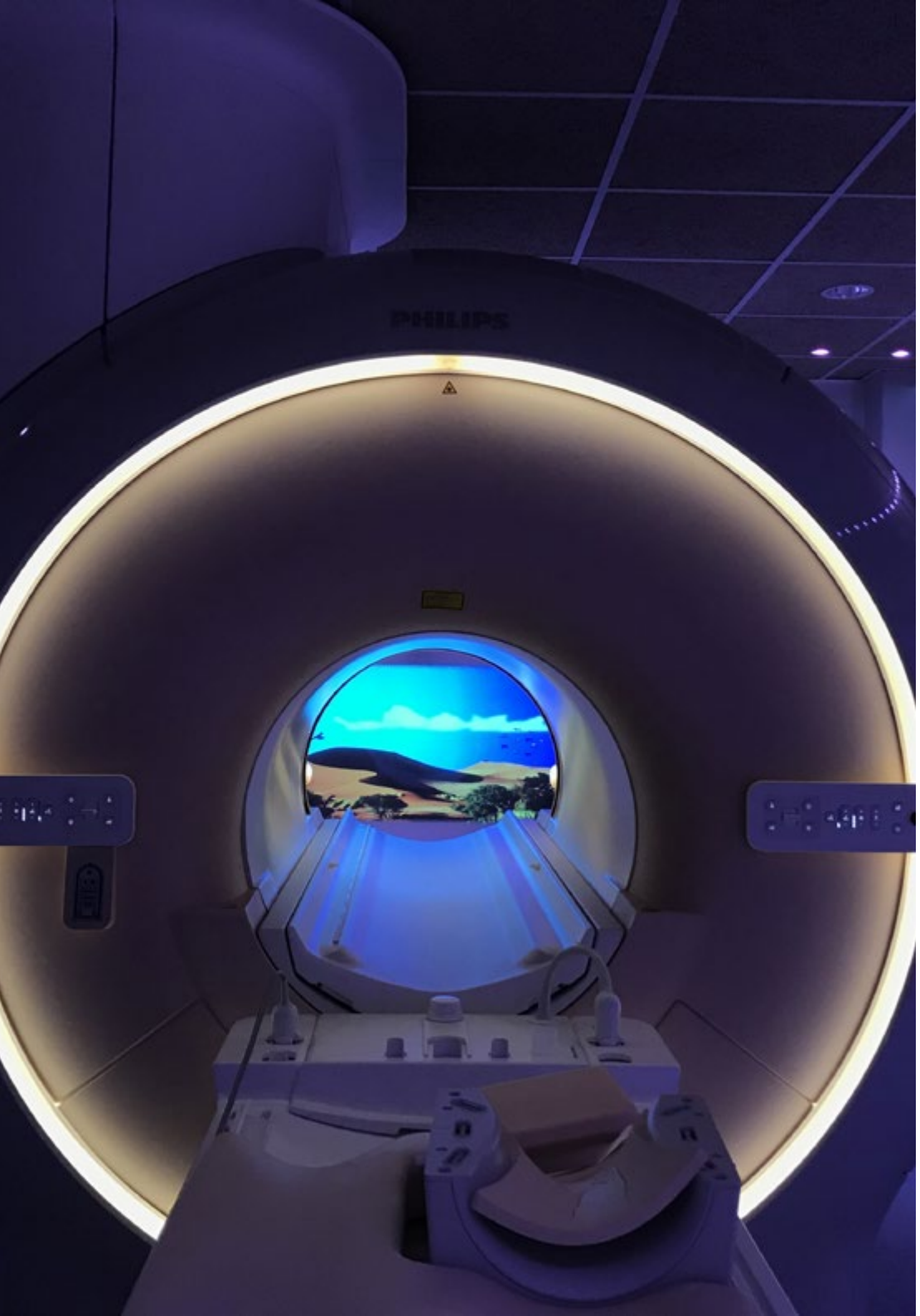
1.4. Digestive System Diseases
- 1.4.1. Anatomy and Function
- 1.4.2. Digestive System, Nutrition and Hydroelectrolyte Exchange
- 1.4.3. Gastroesophageal Diseases
- 1.4.4. Gastrointestinal Infectious Diseases
- 1.4.5. Liver and Biliary Tract Diseases
- 1.4.6. Pancreatic Diseases
- 1.4.7. Colon Diseases

1.5. Renal and Urinary Tract Diseases
- 1.5.1. Anatomy and Function
- 1.5.2. Renal Insufficiency (Prerenal, Renal and Postrenal), How They Are Triggered
- 1.5.3. Obstructive Urinary Tract Diseases
- 1.5.4. Sphincteric Insufficiency in the Urinary Tract
- 1.5.5. Nephrotic Syndrome and Nephritic Syndrome

1.6. Endocrine System Diseases
- 1.6.1. Anatomy and Function
- 1.6.2. The Menstrual Cycle and Associated Conditions
- 1.6.3. Thyroid Disease
- 1.6.4. Adrenal Insufficiency
- 1.6.5. Disorders of Sexual Differentiation
- 1.6.6. Hypothalamic-Pituitary Axis, Calcium Metabolism, Vitamin D and Effects on Growth and Skeleton

1.7. Metabolism and Nutrition
- 1.7.1. Essential and Non-Essential Nutrients: Clarifying Definitions
- 1.7.2. Carbohydrate Metabolism and Alterations
- 1.7.3. Protein Metabolism and Alterations
- 1.7.4. Lipids Metabolism and Alterations
- 1.7.5. Iron Metabolism and Alterations
- 1.7.6. Disorders of Acid-Base Balance
- 1.7.7. Sodium and Potassium Metabolism and Alterations
- 1.7.8. Nutritional Diseases (Hypercaloric and Hypocaloric)

1.8. Hematologic Diseases
- 1.8.1. Anatomy and Function
- 1.8.2. Red Blood Cell Disorders
- 1.8.3. Diseases of White Blood Cells, Lymph Nodes and Spleen
- 1.8.4. Hemostasis and Bleeding Diseases



1.9. Musculoskeletal System Diseases
- 1.9.1. Anatomy and Function
- 1.9.2. Joints: Types and Function
- 1.9.3. Bone Regeneration
- 1.9.4. Normal and Pathological Skeletal System Development
- 1.9.5. Deformities of the Upper and Lower Limbs
- 1.9.6. Joint Pathology, Cartilage, and Synovial Fluid Analysis
- 1.9.7. Joint Diseases with Immunologic Origin

1.10. Nervous System Diseases
- 1.10.1. Anatomy and Function
- 1.10.2. Central and Peripheral Nervous System Development
- 1.10.3. Development of the Spine and Components
- 1.10.4. Cerebellum and Proprioceptive Diseases
- 1.10.5. Brain Disorders (Central Nervous System)
- 1.10.6. Spinal Cord and Cerebrospinal Fluid Diseases
- 1.10.7. Stenotic Diseases of the Peripheral Nervous System
- 1.10.8. Infectious Diseases of the Central Nervous System
- 1.10.9. Cerebrovascular Disease (Stenotic and Hemorrhagic)

Module 2. Health System Management and Administration in Health Centers

2.1. Healthcare Systems
- 2.1.1. Healthcare Systems
- 2.1.2. Healthcare Systems according to the WHO
- 2.1.2. Healthcare Context

2.2. Healthcare Models I. Bismark Model vs. Beveridge Model
- 2.2.1. Bismark Model
- 2.2.2. Beveridge Model
- 2.2.3. Bismark Model vs. Beveridge Model

2.3. Healthcare Models II. Semashko, Private and Mixed Models
- 2.3.1. Semashko Model
- 2.3.2. Private Model
- 2.3.3. Mixed Models

2.4. The Healthcare Market
- 2.4.1. The Healthcare Market
- 2.4.2. Regulation and Limitations of the Healthcare Market
- 2.4.3. Payment Methods for Doctors and Hospitals
- 2.4.4. Clinical Engineers

2.5. Hospitals. Typology
- 2.5.1. Hospital Architecture
- 2.5.2. Types of Hospitals
- 2.5.3. Hospital Organization

2.6. Health Metrics
- 2.6.1. Mortality
- 2.6.2. Morbidity
- 2.6.3. Healthy Life Years

2.7. Health Resource Allocation Methods
- 2.7.1. Lineal Programming
- 2.7.2. Maximization Models
- 2.7.3. Minimization Models

2.8. Measuring Healthcare Productivity
- 2.8.1. Measuring Health Productivity
- 2.8.2. Productivity Ratios
- 2.8.3. Input Adjustment
- 2.8.4. Output Adjustment

2.9. Health Process Improvement
- 2.9.1. Lean Management Process
- 2.9.2. Work Simplification Tools
- 2.9.3. Troubleshooting Tools

2.10. Healthcare Project Management
- 2.10.1. The Role Played by Project Managers
- 2.10.2. Team and Project Management Tools
- 2.10.3. Schedule and Time Management

Module 3. Research in Health Sciences

3.1. Scientific Research I. The Scientific Method
- 3.1.1. Scientific Research
- 3.1.2. Research in Health Sciences
- 3.1.3. The Scientific Method

3.2. Scientific Research II. Typology
- 3.2.1. Basic Research
- 3.2.2. Clinical Research
- 3.2.3. Translational Research

3.3. Evidence-Based Medicine
- 3.3.1. Evidence-Based Medicine
- 3.3.2. Principles of Evidence-Based Medicine
- 3.3.3. Methodology of Evidence-Based Medicine

3.4. Ethics and Legislation in Scientific Research. Declaration of Helsinki
- 3.4.1. The Ethics Committee
- 3.4.2. Declaration of Helsinki
- 3.4.3. Ethics in Health Sciences

3.5. Scientific Research Results
- 3.5.1. Methods
- 3.5.2. Rigor and Statistical Power
- 3.5.3. Scientific Results Validity

3.6. Public Communication
- 3.6.1. Scientific Societies
- 3.6.2. Scientific Conferences
- 3.6.3. Communication Structures

3.7. Funding in Scientific Research
- 3.7.1. Structure in Scientific Projects
- 3.7.2. Public Financing
- 3.7.3. Private and Industrial Funding

3.8. Scientific Resources in Literature Searching. Health Sciences Databases I
- 3.8.1. PubMed-Medline
- 3.8.2. Embase
- 3.8.3. WOS and JCR
- 3.8.4. Scopus and Scimago
- 3.8.5. Micromedex
- 3.8.6. MEDES
- 3.8.7. IBECS
- 3.8.8. LILACS
- 3.8.9. BDENF
- 3.8.10. Cuidatge
- 3.8.11. CINAHL
- 3.8.12. Cuiden Plus
- 3.8.13. Enfispo
- 3.8.14. NCBI (OMIM, TOXNET) and NIH (National Cancer Institute) Databases

3.9. Scientific Resources in Literature Searching. Health Sciences Databases II
- 3.9.1. NARIC - Rehabdata
- 3.9.2. PEDro
- 3.9.3. ASABE: Technical Library
- 3.9.4. CAB Abstracts
- 3.9.5. Centre for Reviews and Dissemination (CRD) Databases:
- 3.9.6. Biomed Central BMC
- 3.9.7. ClinicalTrials.gov
- 3.9.8. Clinical Trials Register
- 3.9.9. DOAJ- Directory of Open Access Journals
- 3.9.10. PROSPERO (International Register of Systemic Review)
- 3.9.11. TRIP
- 3.9.12. LILACS
- 3.9.13. NIH. Medical Library
- 3.9.14. Medline Plus
- 3.9.15. OPS

3.10. Scientific Resources in Literature Searching III. Search Engines and Platforms
- 3.10.1. Search Engines and Multisearch Engines
  - 3.10.1.1. Findr
  - 3.10.1.2. Dimensions
  - 3.10.1.3. Google Scholar
  - 3.10.1.4. Microsoft Academic
- 3.10.2. WHO International Clinical Trials Registration Platform (ICTRP)
  - 3.10.2.1. PubMed Central PMC
  - 3.10.2.2. Open Science Collector (RECOLECTA)
  - 3.10.2.3. Zenodo
- 3.10.3. Doctoral Thesis Search Engines
  - 3.10.3.1. DART-Europe
  - 3.10.3.2. Dialnet
  - 3.10.3.3. OATD (Open Access Theses and Dissertations)
  - 3.10.3.4. TDR (Doctoral Theses Online)
  - 3.10.3.5. TESEO
- 3.10.4. Bibliography Managers
  - 3.10.4.1. Endnote Online
  - 3.10.4.2. Mendeley
  - 3.10.4.3. Zotero
  - 3.10.4.4. Citeulike
  - 3.10.4.5. Refworks
- 3.10.5. Digital Social Networks for Researchers
  - 3.10.5.1. Scielo
  - 3.10.5.2. Dialnet
  - 3.10.5.3. Free Medical Journals
  - 3.10.5.4. DOAJ
  - 3.10.5.5. Open Science Directory
  - 3.10.5.6. Redalyc
  - 3.10.5.7. Academia.edu
  - 3.10.5.8. Mendeley
  - 3.10.5.9. ResearchGate

3.10.6. Social Web 2.0 Resources
- 3.10.6.1. Delicious
- 3.10.6.2. SlideShare
- 3.10.6.3. YouTube
- 3.10.6.4. Twitter
- 3.10.6.5. Health Science Blogs
- 3.10.6.6. Facebook.
- 3.10.6.7. Evernote
- 3.10.6.8. Dropbox
- 3.10.6.9. Google Drive

3.10.7. Scientific Journal Publishers and Aggregators Portals
- 3.10.7.1. Science Direct
- 3.10.7.2. Ovid
- 3.10.7.3. Springer
- 3.10.7.4. Wiley
- 3.10.7.5. Proquest
- 3.10.7.6. Ebsco
- 3.10.7.7. BioMed Central

Module 4. Techniques, Recognition and Intervention using Biomedical Imaging

4.1. Medical Imaging
- 4.1.1. Modalities in Medical Imaging
- 4.1.2. Objectives in Medical Imaging Systems
- 4.1 3. Medical Imaging Storage Systems

4.2. Radiology
- 4.2.1. Imaging Method
- 4.2.2. Radiology Interpretation
- 4.2.3. Clinical Applications

4.3. Computed Tomography (CT)
- 4.3.1. Principle of Operation
- 4.3.2. Image Generation and Acquisition
- 4.3.3. Computerized Tomography. Typology
- 4.3.4. Clinical Applications

4.4. Magnetic Resonance Imaging (MRI)
- 4.4.1. Principle of Operation
- 4.4.2. Image Generation and Acquisition
- 4.4.3. Clinical Applications

4.5. Ultrasound: Ultrasound and Doppler Sonography
- 4.5.1. Principle of Operation
- 4.5.2. Image Generation and Acquisition
- 4.5.3. Typology
- 4.5.4. Clinical Applications

4.6. Nuclear Medicine
- 4.6.1. Physiological Basis in Nuclear Studies. Radiopharmaceuticals and Nuclear Medicine
- 4.6.2. Image Generation and Acquisition
- 4.6.3. Types of Tests
  - 4.6.3.1. Gammagraphy
  - 4.6.3.2. SPECT
  - 4.6.3.3. PET
  - 4.6.3.4. Clinical Applications

4.7. Image-Guided Interventions
- 4.7.1. Interventional Radiology
- 4.7.2. Interventional Radiology Objectives
- 4.7.3. Procedures
- 4.7.4. Advantages and Disadvantages

4.8. Image Quality
- 4.8.1. Technique
- 4.8.2. Contrast
- 4.8.3. Resolution
- 4.8.4. Noise
- 4.8.5. Distortion and Artifacts

4.9. Medical Imaging Tests. Biomedicine
- 4.9.1. Creating 3D Images
- 4.9.2. Biomodels
  - 4.9.2.1. DICOM Standard
  - 4.9.2.2. Clinical Applications

4.10. Radiological Protection
- 4.10.1. European Legislation Applicable to Radiology Services
- 4.10.2. Safety and Action Protocols
- 4.10.3. Radiological Waste Management
- 4.10.4. Radiological Protection
- 4.10.5. Care and Characteristics of Rooms

Module 5. Computation in Bioinformatics

5.1. Central Tenet in Bioinformatics and Computing. Current State
- 5.1.1. The Ideal Application in Bioinformatics
- 5.1.2. Parallel Developments in Molecular Biology and Computing
- 5.1.3. Dogma in Biology and Information Theory
- 5.1.4. Information Flows

5.2. Databases for Bioinformatics Computing
- 5.2.1. Database
- 5.2.2. Data management
- 5.2.3. Data Life Cycle in Bioinformatics
  - 5.2.3.1. Use
  - 5.2.3.2. Modifications
  - 5.2.3.3. Archive
  - 5.2.3.4. Reuse
  - 5.2.3.5. Discarded
- 5.2.4. Database Technology in Bioinformatics
  - 5.2.4.1. Architecture
  - 5.2.4.2. Database Management
- 5.2.5. Interfaces for Bioinformatics Databases

5.3. Networks for Bioinformatics Computing
- 5.3.1. Communication Models. LAN, WAN, MAN and PAN Networks
- 5.3.2. Protocols and Data Transmission
- 5.3.3. Network Topologies
- 5.3.4. Datacenter Hardware for Computing
- 5.3.5. Security, Management and Implementation

5.4. Search Engines in Bioinformatics
- 5.4.1. Search Engines in Bioinformatics
- 5.4.2. Search Engine Processes and Technologies in Bioinformatics
- 5.4.3. Computational Models: Search and Approximation Algorithms

5.5. Data Display in Bioinformatics
- 5.5.1. Displaying Biological Sequences
- 5.5.2. Displaying Biological Structures
  - 5.5.2.1. Visualization Tools
  - 5.5.2.2. Rendering Tools
- 5.5.3. User Interface in Bioinformatics Applications
- 5.5.4. Information Architectures for Displays in Bioinformatics

5.6. Statistics for Computing
- 5.6.1. Statistical Concepts for Computing in Bioinformatics
- 5.6.2. Use Case: MARN Microarrays
- 5.6.3. Imperfect Data. Statistical Errors: Randomness, Approximation, Noise and Assumptions
- 5.6.4. Error Quantification: Precision and Sensitivity
- 5.6.5. Clustering and Classification

5.7. Data Mining
- 5.7.1. Mining and Data Computing Methods
- 5.7.2. Infrastructure for Data Mining and Computing
- 5.7.3. Pattern Discovery and Recognition
- 5.7.4. Machine Learning and New Tools

5.8. Genetic Pattern Matching
- 5.8.1. Genetic Pattern Matching
- 5.8.2. Computational Methods for Sequence Alignments
- 5.8.3. Pattern Matching Tools

5.9. Modelling and Simulation
- 5.9.1. Use in the Pharmaceutical Field: Drug Discovery
- 5.9.2. Protein Structure and Systems Biology
- 5.9.3. Available Tools and Future

5.10. Collaboration and Online Computing Projects
- 5.10.1. Grid Computing
- 5.10.2. Standards and Rules Uniformity, Consistency and Interoperability
- 5.10.3. Collaborative Computing Projects

Module 6. Biomedical Databases

6.1. Biomedical Databases
- 6.1.1. Biomedical Databases
- 6.1.2. Primary and Secondary Databases
- 6.1.3. Major Databases

6.2. DNA Databases
- 6.2.1. Genome Databases
- 6.2.2. Gene Databases
- 6.2.3. Mutations and Polymorphisms Databases

6.3. Protein Databases
- 6.3.1. Primary Sequence Databases
- 6.3.2. Secondary Sequence and Domain Databases
- 6.3.3. Macromolecular Structure Databases

6.4. Omics Projects Databases
- 6.4.1. Genomics Studies Databases
- 6.4.2. Transcriptomics Studies Databases
- 6.4.3. Proteomics Studies Databases

6.5. Genetic Diseases Databases. Personalized and Precision Medicine
- 6.5.1. Genetic Diseases Databases
- 6.5.2. Precision Medicine. The Need to Integrate Genetic Data
- 6.5.3. Extracting Data from OMIM

6.6. Self-Reported Patient Repositories
- 6.6.1. Secondary Data Use
- 6.6.2. Patients' Role in Deposited Data Management
- 6.6.3. Repositories of Self-Reported Questionnaires. Examples:

6.7. Elixir Open Databases
- 6.7.1. Elixir Open Databases
- 6.7.2. Databases Collected on the Elixir Platform
- 6.7.3. Criteria for Choosing between Databases

6.8. Adverse Drug Reactions (ADRs) Databases
- 6.8.1. Pharmacological Development Processes
- 6.8.2. Adverse Drug Reaction Reporting
- 6.8.3. Adverse Reaction Repositories at European and International Levels

6.9. Research Data Management Plans. Data to be Deposited in Public Databases
- 6.9.1. Data Management Plans
- 6.9.2. Data Custody in Research
- 6.9.3. Data Entry in Public Databases

6.10. Clinical Databases. Problems with Secondary Use of Health Data
- 6.10.1. Medical Record Repositories
- 6.10.2. Data Encryption

Module 7. Big Data in Medicine: Massive Medical Data Processing

7.1. Big Data in Biomedical Research
- 7.1.1. Data Generation in Biomedicine
- 7.1.2. High-Throughput Technology
- 7.1.3. Uses of High-Throughput Data. Hypotheses in the Age of Big Data

7.2. Data Pre-Processing in Big Data
- 7.2.1. Data Pre-Processing
- 7.2.2. Methods and Approaches
- 7.2.3. Problems with Data Pre-Processing in Big Data

7.3. Structural Genomics
- 7.3.1. Sequencing the Human Genome
- 7.3.2. Sequencing vs. Chips
- 7.3.3. Variant Discovery

7.4. Functional Genomics
- 7.4.1. Functional Notation
- 7.4.2. Mutation Risk Predictors
- 7.4.3. Association Studies in Genomics

7.5. Transcriptomics
- 7.5.1. Techniques to Obtain Massive Data in Transcriptomics: RNA-seq
- 7.5.2. Data Normalization in Transcriptomics
- 7.5.3. Differential Expression Studies

7.6. Interactomics and Epigenomics
- 7.6.1. The Role of Chromatin in Gene Expression
- 7.6.2. High-Throughput Studies in Interactomics
- 7.6.3. High-Throughput Studies in Epigenetics

7.7. Proteomics
- 7.7.1. Analysis of Mass Spectrometry Data
- 7.7.2. Post-Translational Modifications Study
- 7.7.3. Quantitative Proteomics

7.8. Enrichment and Clustering Techniques
- 7.8.1. Contextualizing Results
- 7.8.2. Clustering Algorithms in Omics Techniques
- 7.8.3. Repositories for Enrichment: Gene Ontology and KEGG

7.9. Applying Big Data to Public Health
- 7.9.1. Discovery of New Biomarkers and Therapeutic Targets
- 7.9.2. Risk Predictors
- 7.9.3. Personalized Medicine

7.10. Big Data Applied to Medicine
- 7.10.1. Potential for Diagnostic and Preventive Assistance
- 7.10.2. Use of Machine Learning Algorithms in Public Health
- 7.10.3. The Problem of Privacy

Module 8. Applications of Artificial Intelligence and the Internet of Things (IoT) in Telemedicine

8.1. E-Health Platforms. Personalizing Healthcare Services
- 8.1.1. E-Health Platform
- 8.1.2. Resources for E-Health Platforms
- 8.1.3. Digital Europe Program. Digital Europe-4-Health and Horizon Europe

8.2. Artificial Intelligence in Healthcare I: New Solutions in Computer Applications
- 8.2.1. Remote Analysis of Results
- 8.2.2. Chatbox
- 8.2.3. Prevention and Real-Time Monitoring
- 8.2.4. Preventive and Personalized Medicine in Oncology

8.3. Artificial Intelligence in Healthcare II: Monitoring and Ethical Challenges
- 8.3.1. Monitoring Patients with Reduced Mobility
- 8.3.2. Cardiac Monitoring, Diabetes, Asthma
- 8.3.3. Health and Wellness Apps
  - 8.3.3.1. Heart Rate Monitors
  - 8.3.3.2. Blood Pressure Bracelets
- 8.3.4. Ethical Use of AI in the Medical Field. Data Protection

8.4. Artificial Intelligence Algorithms for Image Processing
- 8.4.1. Artificial Intelligence Algorithms for Image Handling
- 8.4.2. Image Diagnosis and Monitoring in Telemedicine
  - 8.4.2.1. Melanoma Diagnosis
- 8.4.3. Limitations and Challenges in Image Processing in Telemedicine

8.5. Application Acceleration using Graphics Processing Units (GPU) in Medicine
- 8.5.1. Program Parallelization
- 8.5.2. GPU Operations
- 8.5.3. Application Acceleration using GPU in Medicine

8.6. Natural Language Processing (NLP) in Telemedicine
- 8.6.1. Text Processing in the Medical Field. Methodology
- 8.6.2. Natural Language Processing in Therapy and Medical Records
- 8.6.3. Limitations and Challenges in Natural Language Processing in Telemedicine

8.7. The Internet of Things (IoT) in Telemedicine. Applications
- 8.7.1. Monitoring Vital Signs. Wearables
  - 8.7.1.1. Blood Pressure, Temperature, and Heart Rate
- 8.7.2. The IoT and Cloud Technology
  - 8.7.2.1. Data Transmission to the Cloud
- 8.7.3. Self-Service Terminals

8.8. IT in Patient Monitoring and Care
- 8.8.1. IoT Applications for Emergency Detection
- 8.8.2. The Internet of Things in Patient Rehabilitation
- 8.8.3. Artificial Intelligence Support in Victim Recognition and Rescue

8.9. Nanorobots. Typology
- 8.9.1. Nanotechnology
- 8.9.2. Types of Nanorobots
  - 8.9.2.1. Assemblers. Applications
  - 8.9.2.2. Self-Replicators. Applications

8.10. Artificial Intelligence in COVID-19 Control
- 8.10.1. COVID-19 and Telemedicine
- 8.10.2. Management and Communication of Breakthroughs and Outbreaks
- 8.10.3. Outbreak Prediction in Artificial Intelligence

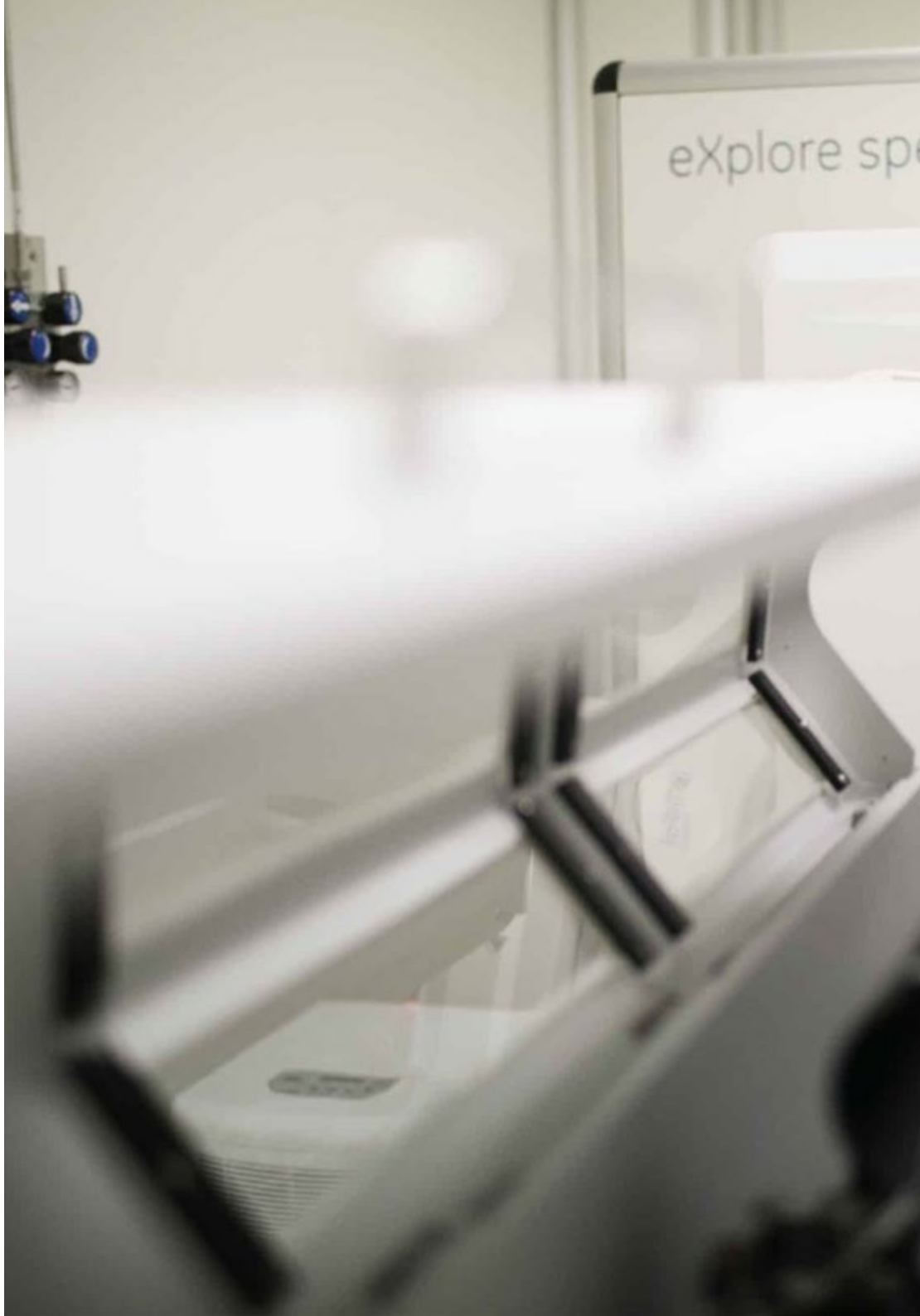
Module 9. Telemedicine and Medical, Surgical and Biomechanical Devices

9.1. Telemedicine and Telehealth
- 9.1.1. Telemedicine as a Telehealth Service
- 9.1.2. Telemedicine
  - 9.1.2.1. Telemedicine Objectives
  - 9.1.2.2. Benefits and Limitations of Telemedicine
- 9.1.3. Digital Health. Technologies

9.2. Telemedicine Systems
- 9.2.1. Components in Telemedicine Systems
  - 9.2.1.1. Personal
  - 9.2.1.2. Technology
- 9.2.2. Information and Communication Technologies (ICT) in the Health Sector
  - 9.2.2.1. T-Health
  - 9.2.2.2. M-Health
  - 9.2.2.3. M-Health
  - 9.2.2.4. P-Health
- 9.2.3. Telemedicine Systems Assessment

9.3. Technology Infrastructure in Telemedicine
- 9.3.1. Public Switched Telephone Network (PSTN)
- 9.3.2. Satellite Networks
- 9.3.3. Integrated Services Digital Network (ISDN)
- 9.3.4. Wireless Technology
  - 9.3.4.1. WAP. Wireless Application Protocol
  - 9.3.4.2. Bluetooth
- 9.3.5. Microwave Connections
- 9.3.6. Asynchronous Transfer Mode (ATM)

9.4. Types of Telemedicine. Uses in Healthcare
- 9.4.1. Remote Patient Monitoring
- 9.4.2. Storage and Shipping Technologies
- 9.4.3. Interactive Telemedicine



9.5. Telemedicine: General Applications
- 9.5.1. Telecare
- 9.5.2. Telemonitoring
- 9.5.3. Telediagnostics
- 9.5.4. Tele-Education
- 9.5.5. Telemanagement

9.6. Telemedicine: Clinical Applications
- 9.6.1. Teleradiology
- 9.6.2. Teledermatology
- 9.6.3. Teleoncology
- 9.6.4. Telepsychiatry
- 9.6.5. Home Care (Telehomecare)

9.7. Smart Technologies and Care
- 9.7.1. Integrating Smart Homes
- 9.7.2. Digital Health to Improve Treatment
- 9.7.3. Telehealth Clothing Technology. "Smart Clothes"

9.8. Ethical and Legal Aspects of Telemedicine
- 9.8.1. Ethical Foundations
- 9.8.2. Common Regulatory Frameworks
- 9.8.4. ISO Standards

9.9. Telemedicine and Diagnostic, Surgical and Biomechanical Devices
- 9.9.1. Diagnostic Devices
- 9.9.2. Surgical Devices
- 9.9.2. Biomechanical Devices

9.10. Telemedicine and Medical Devices
- 9.10.1. Medical Devices
  - 9.10.1.1. Mobile Medical Devices
  - 9.10.1.2. Telemedicine Carts
  - 9.10.1.3. Telemedicine Kiosks
  - 9.10.1.4. Digital Cameras
  - 9.10.1.5. Telemedicine Kit
  - 9.10.1.6. Telemedicine Software

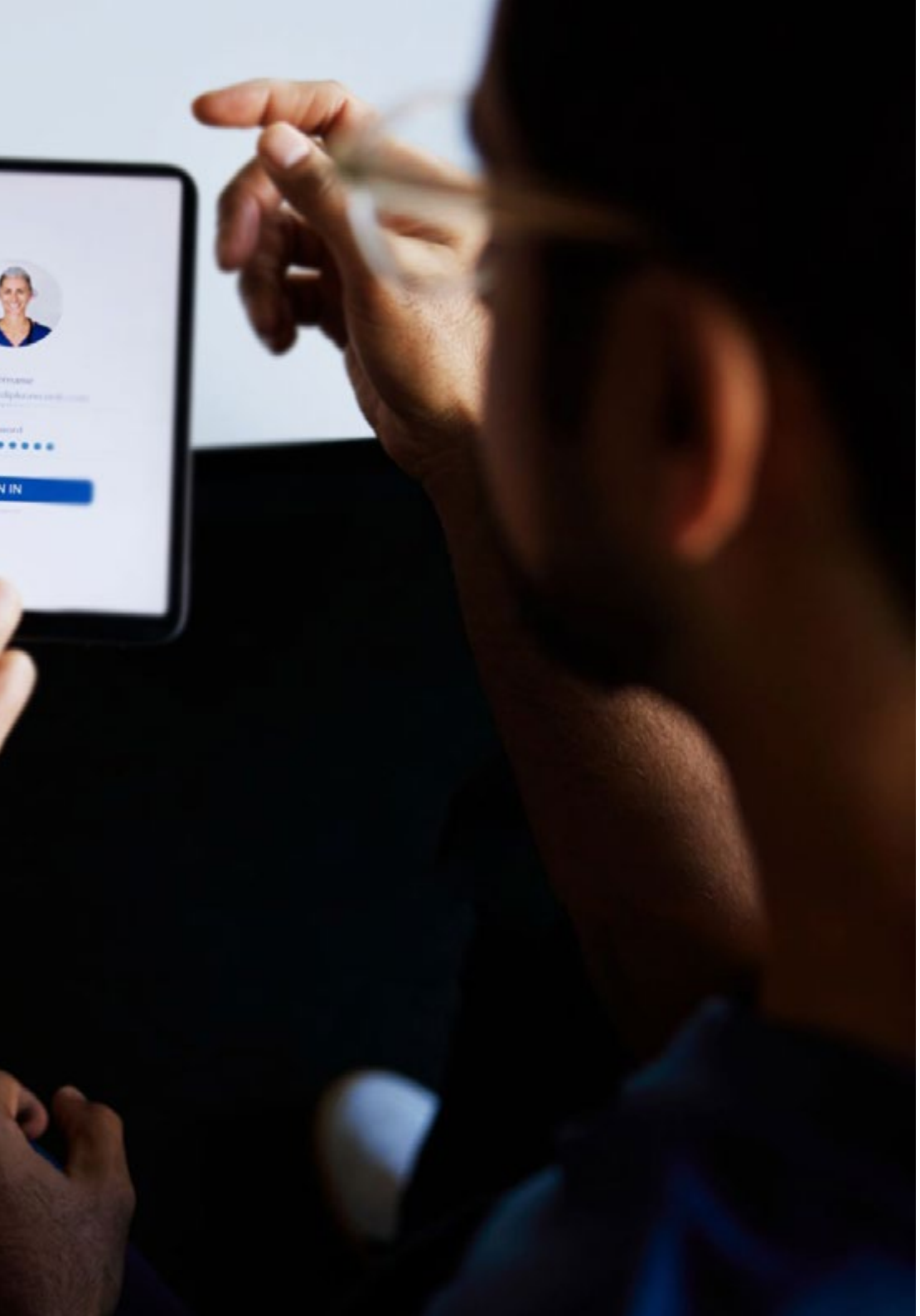
Module 10. Business Innovation and Entrepreneurship in E-Health

10.1. Entrepreneurship and Innovation
- 10.1.1. Innovation
- 10.1.2. Entrepreneurship
- 10.1.3. Startups

10.2. Entrepreneurship in E-Health
- 10.2.1. Innovative E-Health Market
- 10.2.2. Verticals in E-Health: M-Health
- 10.2.3. Tele-Health

10.3. Business Models I: First Stages in Entrepreneurship
- 10.3.1. Types of Business Models
  - 10.3.1.1. Marketplaces
  - 10.3.1.2. Digital Platforms
  - 10.3.1.3. SaaS
- 10.3.2. Critical Elements in the Initial Phase. The Business Idea
- 10.3.3. Common Mistakes in the First Stages of Entrepreneurship

10.4. Business Models II: Business Model Canvas
- 10.4.1. Canvas Business Model
- 10.4.2. Value proposition
- 10.4.3. Key Activities and Resources
- 10.4.4. Customer Segments
- 10.4.5. Customer Relationships
- 10.4.6. Distribution Channels
- 10.4.7. Partnerships
  - 10.4.7.1. Cost Structure and Revenue Streams



10.5. Business Models III: Lean Startup Methodology
- 10.5.1. Create
- 10.5.2. Validate
- 10.5.3. Measure
- 10.5.4. Decide

10.6. Business Models IV: External, Strategic and Regulatory Analysis
- 10.6.1. Red Ocean and Blue Ocean Strategies
- 10.6.2. Value Curves
- 10.6.3. Applicable E-Health Regulations

10.7. Successful E-Health Models I: Knowing Before Innovating
- 10.7.1. Analysis of Successful E-Health Companies
- 10.7.2. Analysis of Company X
- 10.7.3. Analysis of Company Y
- 10.7.4. Analysis of Company Z

10.8. Successful E-Health Models II: Listening before Innovating
- 10.8.1. Practical Interview: E-Health Startup CEO
- 10.8.2. Practical Interview: "Sector X" Startup CEO
- 10.8.3. Practical Interview: "Startup X" Technical Management

10.9. Entrepreneurial Environment and Funding
- 10.9.1. Entrepreneur Ecosystems in the Health Sector
- 10.9.2. Financing
- 10.9.3. Funding

10.10. Practical Tools in Entrepreneurship and Innovation
- 10.10.1. Open-Source Intelligence (OSINT)
- 10.10.2. Analysis
- 10.10.3. No-Code Tools in Entrepreneurship

06

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 is the most widely used learning system in the best faculties in the world. 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 program, the studies 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

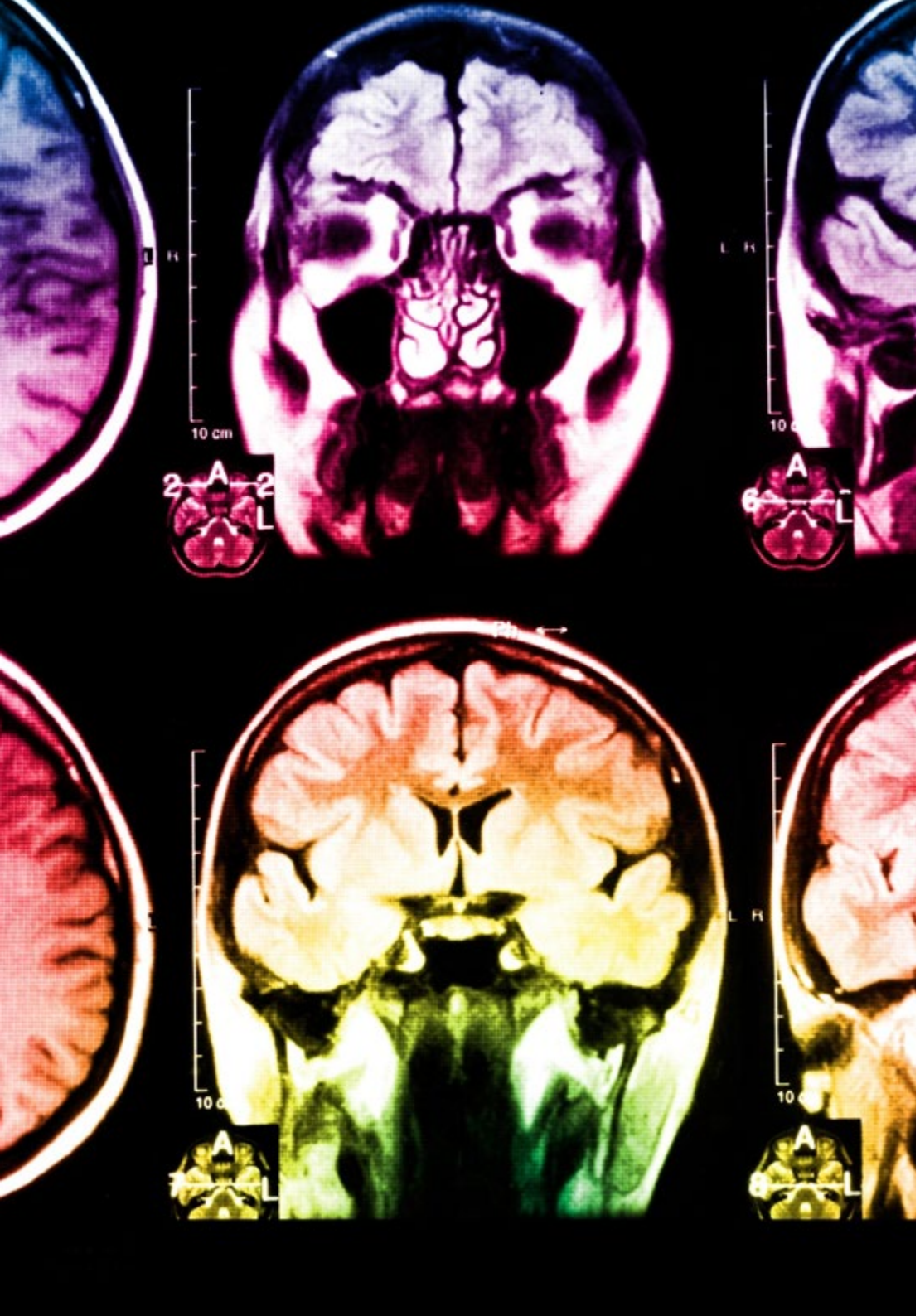
TECH effectively combines the Case Study methodology with a 100% online learning system based on repetition, which combines 8 different teaching elements in each lesson.

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.

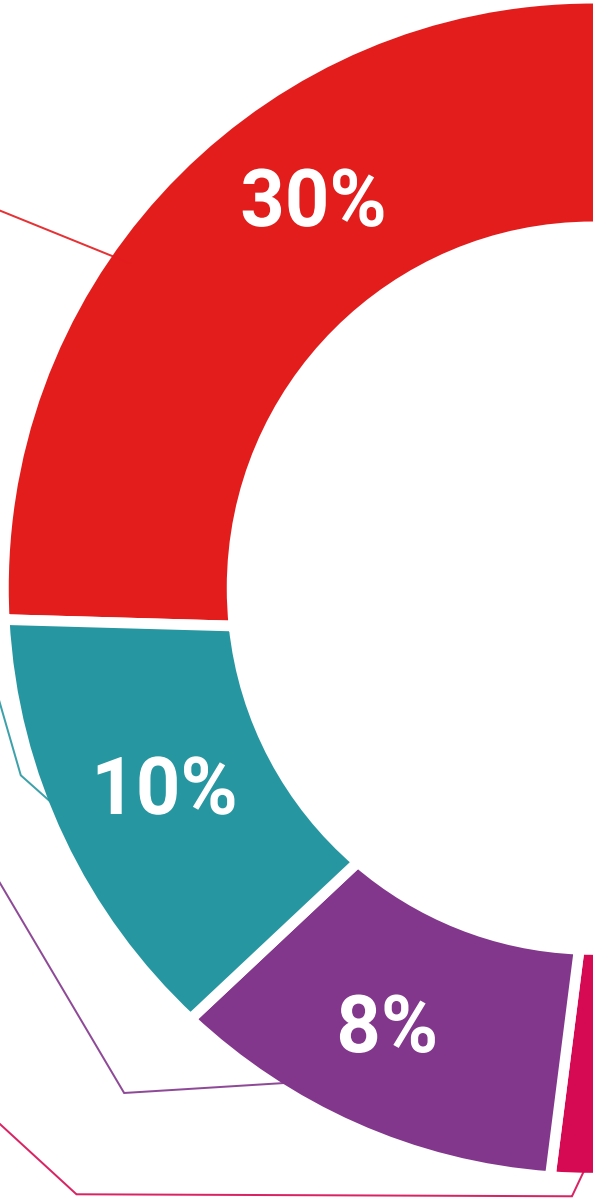
Learning from an Expert strengthens knowledge and memory, and generates confidence in future difficult decisions.

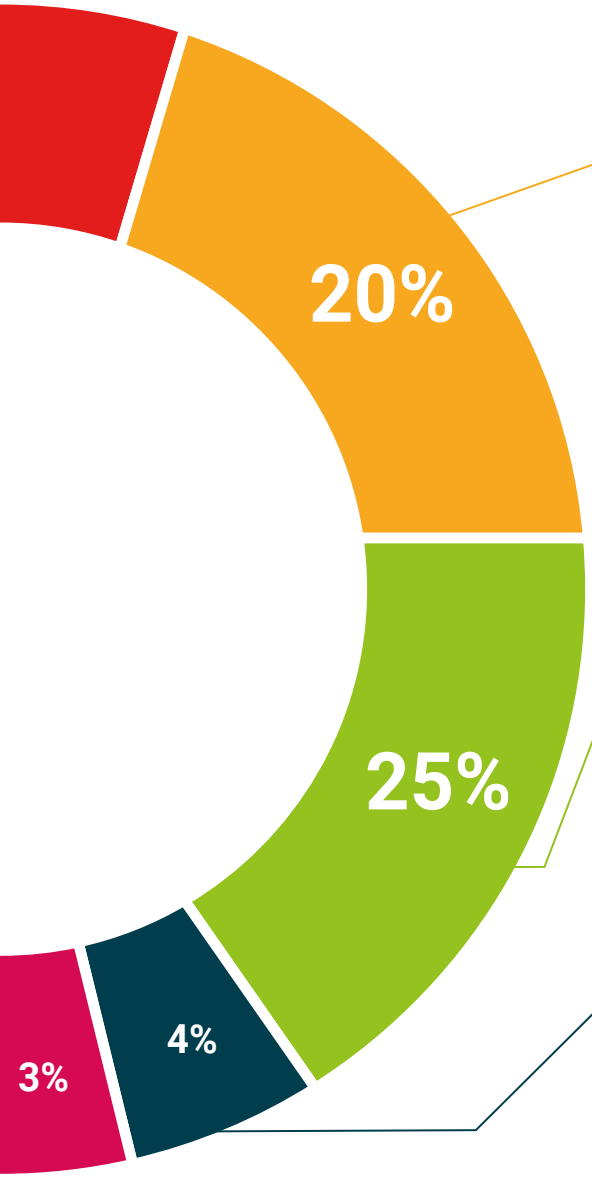
Practising Skills and Abilities

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.

07

Certificate

The Professional Master's Degree in E-Health and Big Data guarantees students, in addition to the most rigorous and up-to-date education, access to a Professional Master's Degree 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 **Professional Master's Degree diploma in E-Health and Big Data** 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: **Professional Master's Degree in E-Health and Big Data**

Modality: **online**

Duration: **12 months**

Accreditation: **60 ECTS**

tech global university

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

Professional Master's Degree in E-Health and Big Data

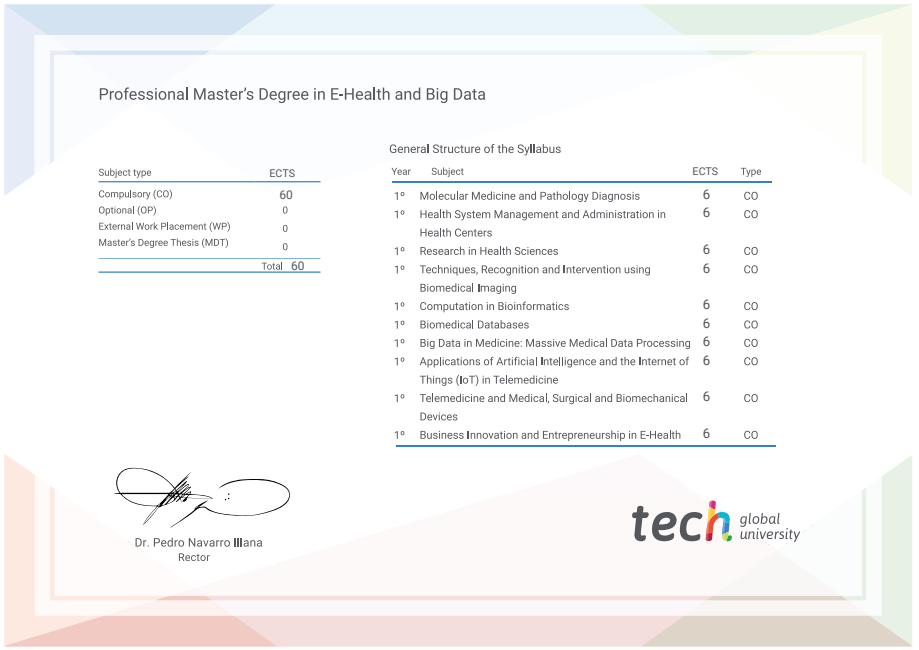
This is a program of 1,500 hours of duration equivalent to 60 ECTS, with a start date of dd/mm/yyyy and an end date of dd/mm/yyyy.

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



Professional Master's Degree in E-Health and Big Data

Subject type	ECTS
Compulsory (CO)	60
Optional (OP)	0
External Work Placement (WP)	0
Master's Degree Thesis (MDT)	0
Total	60

General Structure of the Syllabus

Year	Subject	ECTS	Type
1º	Molecular Medicine and Pathology Diagnosis	6	CO
1º	Health System Management and Administration in Health Centers	6	CO
1º	Research in Health Sciences	6	CO
1º	Techniques, Recognition and Intervention using Biomedical Imaging	6	CO
1º	Computation in Bioinformatics	6	CO
1º	Biomedical Databases	6	CO
1º	Big Data in Medicine: Massive Medical Data Processing	6	CO
1º	Applications of Artificial Intelligence and the Internet of Things (IoT) in Telemedicine	6	CO
1º	Telemedicine and Medical, Surgical and Biomechanical Devices	6	CO
1º	Business Innovation and Entrepreneurship in E-Health	6	CO

Dr. Pedro Navarro Illana
Rector

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

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Professional Master's Degree

E-Health and Big Data

- Modality: **online**
- Duration: **12 months**
- Certificate: **TECH Global University**
- Credits: **60 ECTS**
- Schedule: **at your own pace**
- Exams: **online**

Professional Master's Degree

E-Health and Big Data

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