

Postgraduate Certificate

Ethical Aspects of Artificial Intelligence in Dentistry



Postgraduate Certificate Ethical Aspects of Artificial Intelligence in Dentistry

- » Modality: online
- » Duration: 6 weeks
- » Certificate: TECH Technological University
- » Dedication: 16h/week
- » Schedule: at your own pace
- » Exams: online

Website: www.techtute.com/in/artificial-intelligence/postgraduate-certificate/ethical-aspects-artificial-intelligence-dentistry

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01

Introduction

Despite the many advantages of integrating Artificial Intelligence (AI) in dentistry, it brings with it a number of ethical challenges for healthcare professionals.

For example, the storage of patient data must comply with strict privacy and security standards. In this regard, practitioners must fully inform users about how their information will be used and how machine learning will influence their therapeutic treatments. To ensure proper clinical practice, it is crucial that experts promote values such as empathy, confidentiality and social responsibility. In view of this, TECH is developing a revolutionary university program that will address ethical considerations in the collection and use of dental data. All in a convenient digital format!



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A 100% online Postgraduate Certificate that will fit into the schedules of busy professionals”

The World Health Organization has among its objectives that medical personnel apply to their clinical procedures actions that contribute to sustainable development. Aware of the importance of social responsibility, dental institutions have as a priority to optimize their activities and reduce their environmental impact. To achieve this, they can apply numerous measures ranging from recycling equipment to reduce e-waste to using AI to control lighting use and reduce energy consumption. In addition, experts have the opportunity to use specific materials, taking into account factors such as durability, biocompatibility and environmental impact. They will lessen component waste while promoting more sustainable options.

In this context, TECH implements a pioneering program that will address the social repercussions of AI in dental care. The syllabus will delve into numerous measures for professionals to certify both safety and sustainability during their clinical procedures. To this end, the syllabus will offer a series of policies that graduates will incorporate into their healthcare to enrich their patients' experiences. The didactic materials will also provide a useful assessment of the ethical risks and benefits of Intelligent Automation in the field of dentistry.

Thanks to all this, the program will provide doctors with an excellent theoretical basis with which to optimize their work practice. In addition, the academic itinerary presents a variety of real case studies, thus allowing students to exercise in simulated environments to bring them closer to the reality of dental care.

A program backed by the experience of the best teaching staff and that has a revolutionary and pioneering method in TECH. This is *Relearning*, which is based on the repetition of fundamental concepts for a better acquisition of knowledge.

This **Postgraduate Certificate in Ethical Aspects of Artificial Intelligence in Dentistry** contains the most complete and up-to-date program on the market. The most important features include:

- ♦ The development of case studies presented by experts in Artificial Intelligence in Dentistry
- ♦ 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 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



You will apply the most sustainable dental procedures, using materials that are biocompatible and non-toxic to both patients and the environment"

“

You will delve into the development of Artificial Intelligence policies so that your dental clinical practices are characterized by safety and accuracy”

The program's teaching staff includes professionals from the sector who contribute their work experience to this training 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.

You will stay at the forefront of all regulations and standards concerning Intelligent Automation in Dentistry.

The Relearning system applied by TECH in its programs reduces the long hours of study so frequent in other teaching methods.



02 Objectives

This university program will provide graduates with the tools required to overcome the ethical challenges associated with the use of AI in dentistry, promoting responsible professional practices. Likewise, students will gain a thorough understanding of the regulations and legal norms corresponding to the application of Intelligent Automation in this healthcare field. In this sense, students will acquire new skills in the formulation of policies that will certify totally safe and deontological practices. Experts will also be able to easily adapt to changes in their dental practice in an era characterized by technological evolution.



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With the highest rated learning assistance methods of online teaching, this program will allow you to learn smoothly, consistently and effectively”



General Objectives

- Understand the theoretical foundations of Artificial Intelligence
- Study the different types of data and understand the data lifecycle
- Evaluate the crucial role of data in the development and implementation of AI solutions
- Delve into algorithms and complexity to solve specific problems
- Explore the theoretical basis of neural networks for *Deep Learning* development
- Explore bio-inspired computing and its relevance in the development of intelligent systems
- Analyze current strategies of Artificial Intelligence in various fields, identifying opportunities and challenges
- Gain a solid understanding of *Machine Learning* principles and their specific application in dental contexts
- Analyze dental data, including visualization techniques to improve diagnostics
- Acquire advanced skills in the application of AI for the accurate diagnosis of oral diseases and interpretation of dental images
- Understand the ethical and privacy considerations associated with the application of AI in dentistry
- Explore ethical challenges, regulations, professional liability, social impact, access to dental care, sustainability, policy development, innovation, and future prospects in the application of AI in dentistry





Specific Objectives

- Understand and address ethical challenges related to the use of AI in dentistry, promoting responsible professional practices
- Inquire into the regulations and standards relevant to the application of AI in Dentistry, developing skills in policy formulation to ensure safe and ethical practices
- Address the social, educational, business and sustainable impact of AI in dentistry, to adapt to changes in dental practice in the era of advanced AI
- Manage the tools necessary to understand and address the ethical challenges related to the use of AI in Dentistry, promoting responsible professional practices
- Provide students with a thorough understanding of the social, business and sustainable impact of AI in the field of dentistry, preparing them to lead and adapt to changes that arise during their professional practice



Update your knowledge on Fairness and Bias in Algorithms through innovative multimedia content"

03

Course Management

The teachers of the Postgraduate Certificate in Ethics, Regulation and Future of Artificial Intelligence in Dentistry are highly qualified specialists in their respective fields of study. These professionals have a solid academic background and extensive experience in the application of Machine Learning in clinical settings. Their expertise covers different specialized areas such as biomedical image analysis, robotics in the clinical setting, precision medicine, vaccine development or AI-assisted treatments. These experts have exceptional pedagogical skills to effectively and comprehensibly convey this knowledge to students.



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You will have access to a syllabus designed by a reputable teaching staff, which will guarantee you a successful learning”

Management



Dr. Peralta Martín-Palomino, Arturo

- ♦ CEO and CTO at Prometheus Global Solutions
- ♦ CTO at Korporate Technologies
- ♦ CTO at AI Shephers GmbH
- ♦ Consultant and Strategic Business Advisor at Alliance Medical
- ♦ Director of Design and Development at DocPath
- ♦ Ph.D. in Psychology from the University of Castilla - La Mancha
- ♦ Ph.D. in Economics, Business and Finance from the Camilo José Cela University
- ♦ Ph.D. in Psychology from University of Castilla – La Mancha
- ♦ Professional Master's Degree in Executive MBA by the Isabel I University
- ♦ Professional Master's Degree in Sales and Marketing Management, Isabel I University
- ♦ Expert Master's Degree in Big Data by Hadoop Training
- ♦ Professional Master's Degree in Advanced Information Technologies from the University of Castilla - La Mancha
- ♦ Member of: SMILE Research Group



Dr. Martín-Palomino Sahagún, Patricia

- ♦ Specialist in Dentistry and Orthodontics
- ♦ Private Orthodontist
- ♦ Researcher
- ♦ Ph.D. in Dentistry from the University Alfonso X El Sabio
- ♦ Postgraduate in Orthodontics from the University Alfonso X El Sabio
- ♦ Degree in Dentistry at the University of Alfonso X El Sabio

Professors

Mr. Popescu Radu, Daniel Vasile

- ♦ Pharmacology, Nutrition and Diet Specialist
- ♦ Freelance Producer of Didactic and Scientific Contents
- ♦ Nutritionist and Community Dietitian
- ♦ Community Pharmacist
- ♦ Researcher
- ♦ Professional Master's Degree in Nutrition and Health at the Oberta University of Catalonia (UOC)
- ♦ Professional Master's Degree in Psychopharmacology from the University of Valencia
- ♦ Pharmacist by the Complutense University of Madrid
- ♦ Nutritionist-Dietician at the European University Miguel de Cervantes

Dr. Carrasco González, Ramón Alberto

- ♦ Specialist in Computer Science and Artificial Intelligence
- ♦ Researcher
- ♦ Head of *Business Intelligence* (Marketing) at Caja General de Ahorros de Granada and Banco Mare Nostrum
- ♦ Responsible for Information Systems (*Data Warehousing and Business Intelligence*) at Caja General de Ahorros de Granada and Banco Mare Nostrum
- ♦ Ph.D. in Artificial Intelligence from the University of Granada
- ♦ Computer Engineer from the University of Granada

04

Structure and Content

During this academic itinerary, fundamental issues related to the integration of AI in the dental practice will be addressed. Therefore, the syllabus will delve into the ethical challenges inherent to the use of Intelligent Automation in this healthcare field, analyzing how these technologies impact professional responsibility. Likewise, the program will delve into the regulations governing this application, as well as its social effects. Moreover, the module will highlight both the role of AI in dental education and its contribution to sustainability. In this way, students will implement innovative policies to ensure social welfare.



“

You will overcome any ethical challenges in the use of Artificial Intelligence that arise along the way thanks to this revolutionary program"

Module 1. Ethics, Regulation and the Future of AI in Dentistry

- 1.1. Ethical Challenges in the Use of AI in Dentistry
 - 1.1.1. Ethics in AI-assisted Clinical Decision Making
 - 1.1.2. Patient Privacy in Intelligent Dentistry Environments
 - 1.1.3. Professional Accountability and Transparency in AI Systems
- 1.2. Ethical Considerations in the Collection and Use of Dental Data
 - 1.2.1. Informed Consent and Ethical Data Management in Dentistry
 - 1.2.2. Security and Confidentiality in the Handling of Sensitive Data
 - 1.2.3. Ethics in Research with Large Datasets in Dentistry
- 1.3. Fairness and Bias in AI Algorithms in Dentistry
 - 1.3.1. Addressing Bias in Algorithms to Ensure Fairness
 - 1.3.2. Ethics in the Implementation of Predictive Algorithms in Oral Health
 - 1.3.3. Ongoing Monitoring to Mitigate Bias and Promote Equity
- 1.4. Regulations and Standards in Dental AI
 - 1.4.1. Regulatory Compliance in the Development and Use of AI Technologies
 - 1.4.2. Adaptation to Legal Changes in the Deployment of IA Systems
 - 1.4.3. Collaboration with Regulatory Authorities to Ensure Compliance
- 1.5. AI and Professional Responsibility in Dentistry
 - 1.5.1. Development of Ethical Standards for Professionals using AI
 - 1.5.2. Professional Responsibility in the Interpretation of AI Results
 - 1.5.3. Continuing Education in Ethics for Oral Health Professionals
- 1.6. Social Impact of AI in Dental Care
 - 1.6.1. Social Impact Assessment for Responsible Introduction of AI
 - 1.6.2. Effective Communication about AI Technologies with Patients
 - 1.6.3. Community Participation in the Development of Dental Technologies
- 1.7. AI and Access to Dental Care
 - 1.7.1. Improving Access to Dental Services through AI Technologies
 - 1.7.2. Addressing Accessibility Challenges with AI Solutions
 - 1.7.3. Equity in the Distribution of AI-assisted Dental Services



- 1.8. AI and Sustainability in Dental Practices
 - 1.8.1. Energy Efficiency and Waste Reduction with AI Implementation
 - 1.8.2. Sustainable Practice Strategies Enhanced by AI Technologies
 - 1.8.3. Environmental Impact Assessment in the Integration of AI Systems
- 1.9. AI Policy Development for the Dental Sector
 - 1.9.1. Collaboration with Institutions for the Development of Ethical Policies
 - 1.9.2. Creation of Best Practice Guidelines on the Use of AI
 - 1.9.3. Active Participation in the Formulation of AI-related Government Policies
- 1.10. Ethical Risk and Benefit Assessment of AI in Dentistry
 - 1.10.1. Ethical Risk Analysis in the Implementation of AI Technologies
 - 1.10.2. Ongoing Assessment of Ethical Impact on Dental Care
 - 1.10.3. Long-term Benefits and Risk Mitigation in the Deployment of AI Systems

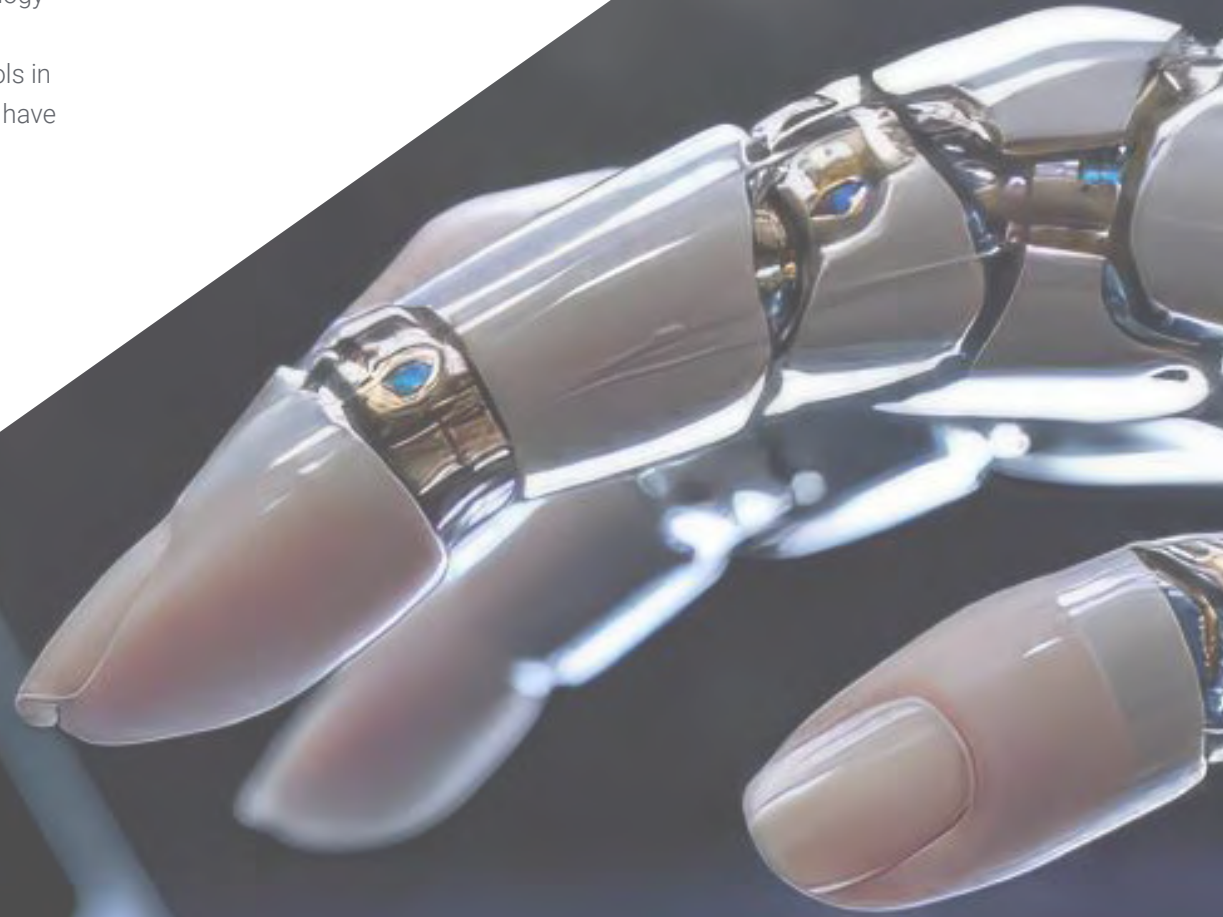
“ *This university program will allow you to meet your professional aspirations in just 6 weeks. Enroll now!* **”**

05

Methodology

This academic program offers students a different way of learning. Our methodology uses a cyclical learning approach: **Relearning**.

This teaching system is used, for example, in the most prestigious medical schools in the world, and major publications such as the **New England Journal of Medicine** have considered it to be one of the most effective.





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Discover Relearning, a system that abandons conventional linear learning, to take you through cyclical teaching systems: a way of learning that has proven to be extremely effective, especially in subjects that require memorization"

Case Study to contextualize all content

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

“

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



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



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

A learning method that is different and innovative

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

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

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

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

Relearning Methodology

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

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

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

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

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





In our program, learning is not a linear process, but rather a spiral (learn, unlearn, forget, and re-learn). Therefore, we combine each of these elements concentrically.

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

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

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

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

This program offers the best educational material, prepared with professionals in mind:



Study Material

All teaching material is produced by the specialists who teach the course, specifically for the course, so that the teaching content is highly specific and precise.

These contents are then applied to the audiovisual format, to create the TECH online working method. All this, with the latest techniques that offer high quality pieces in each and every one of the materials that are made available to the student.



Classes

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

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



Practising Skills and Abilities

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



Additional Reading

Recent articles, consensus documents and international guidelines, among others. In TECH's virtual library, students will have access to everything they need to complete their course.





Case Studies

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



Interactive Summaries

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

This exclusive educational system for presenting multimedia content was awarded by Microsoft as a "European Success Story".



Testing & Retesting

We periodically evaluate and re-evaluate students' knowledge throughout the program, through assessment and self-assessment activities and exercises, so that they can see how they are achieving their goals.



06

Certificate

The Postgraduate Certificate in Ethical Aspects of Artificial Intelligence in Dentistry guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Certificate issued by TECH Technological University.



The image features two black graduation caps (mortarboards) against a bright blue sky with light, wispy clouds. The caps are positioned diagonally, with one in the foreground and another slightly behind it. The background is split into a blue upper section and a white lower section by a diagonal line.

“

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

This **Postgraduate Certificate in Ethical Aspects of Artificial Intelligence in Dentistry** contains the most complete and up-to-date program on the market.

After the student has passed the assessments, they will receive their corresponding **Postgraduate Certificate** issued by **TECH Technological University** via tracked delivery*.

The certificate issued by **TECH Technological University** will reflect the qualification obtained in the Postgraduate Certificate, and meets the requirements commonly demanded by labor exchanges, competitive examinations, and professional career evaluation committees.

Title: **Postgraduate Certificate in Ethical Aspects of Artificial Intelligence in Dentistry**
Official N° of Hours: **150 h.**



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



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