

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.techitute.com/in/dentistry/postgraduate-certificate/ethical-aspects-artificial-intelligence-dentistry

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01

Introduction

Ethics in research with large data sets in dentistry is paramount to ensure that patients' rights are respected and the integrity of the research is maintained. Among the considerations that professionals must bear in mind is obtaining the informed consent of the users. In this regard, individuals must be fully informed about how their data are used, as well as the potential risks and benefits. In addition, experts' responsibilities include implementing robust security measures to protect individuals' information from unauthorized access or security breaches. For this reason, TECH has developed a 100% online university program dedicated to confidentiality in the handling of sensitive data.





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TECH's 100% online methodology will allow you to update your knowledge without interrupting your professional work"

The application of Artificial Intelligence (AI) in dentistry presents ethical issues that must be carefully addressed by practitioners. One example is that they must comply with all applicable data privacy laws and regulations. Otherwise, specialists would face serious consequences ranging from legal sanctions to loss of professional license. Therefore, dentists need to keep abreast of changes in dental AI regulations to ensure that their practices comply with the stipulated laws.

To help them with this task, TECH is implementing a Postgraduate Certificate that will delve into the ethics, regulation and future of AI in the dental field. Designed by experts in the field, the syllabus will delve into the importance of informed consent and confidentiality in the handling of sensitive data. At the same time, the syllabus will address biases in algorithms to ensure fairness. On the other hand, the teaching materials will emphasize the importance of Oral Health professionals constantly expanding their knowledge in order to keep up to date with advances in their specialty.

In terms of training methodology, TECH employs the revolutionary Relearning system, which offers learning in a progressive and natural way. Students can study from anywhere and at their own pace. This allows them to combine their learning process with the rest of their daily responsibilities. With 24-hour access to multimedia resources, students will be able to review material at their own pace and convenience. In addition, they will have the opportunity to conduct case study analysis, which will allow them to develop problem-solving skills when faced with simulations of realistic situations.

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

- ♦ The development of case studies presented by experts in 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 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



You will delve into the development of Artificial Intelligence policies to make your dental clinical practices highly safe"

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You will implement more sustainable dental procedures, using materials that are biocompatible and non-toxic to both patients and the environment”

The program's teaching staff includes professionals from the sector who contribute their work experience to this program, as well as renowned specialists from leading societies and prestigious universities.

The multimedia content, developed with the latest educational technology, will provide the professional with situated and contextual learning, i.e., a simulated environment that will provide immersive education programmed to learn in real situations.

This program is designed around Problem-Based Learning, whereby the professional must try to solve the different professional practice situations that arise during the academic year. For this purpose, the students will be assisted by an innovative interactive video system created by renowned and experienced experts.

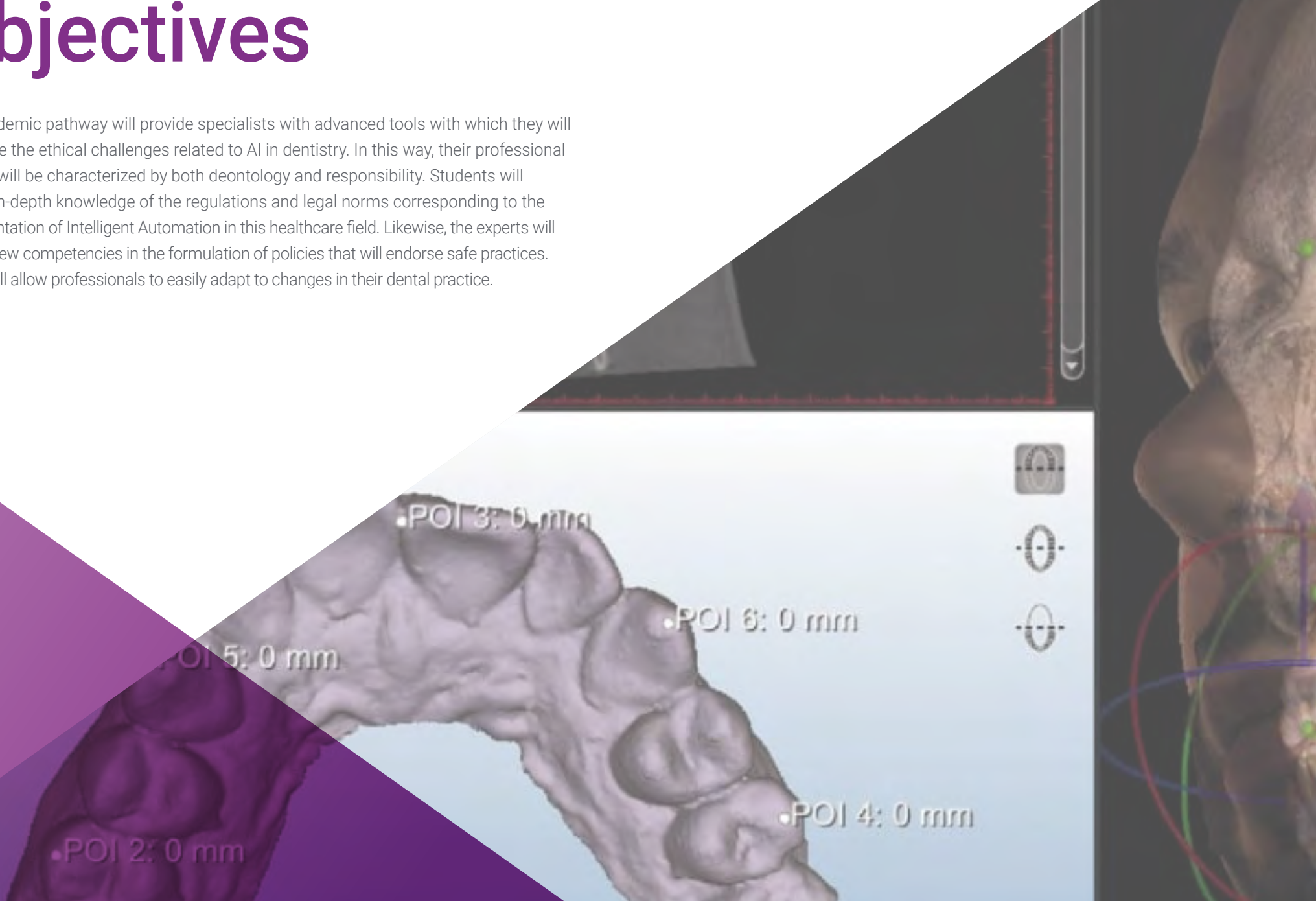
You will stay at the forefront of all regulations and standards concerning Intelligent Automation in Dentistry.

Forget about memorizing! With the Relearning system you will integrate the concepts in a natural and progressive way.



02 Objectives

This academic pathway will provide specialists with advanced tools with which they will overcome the ethical challenges related to AI in dentistry. In this way, their professional practice will be characterized by both deontology and responsibility. Students will acquire in-depth knowledge of the regulations and legal norms corresponding to the implementation of Intelligent Automation in this healthcare field. Likewise, the experts will acquire new competencies in the formulation of policies that will endorse safe practices. All this will allow professionals to easily adapt to changes in their dental practice.



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*This online format allows you,
through case studies, to practice
in simulated learning environments”*



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

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You are looking at a flexible program that is compatible with your most demanding daily responsibilities"

03

Course Management

With the idea in mind of offering qualifications of the highest academic level, TECH has chosen a select teaching staff made up of leading specialists in Ethical Aspects of Machine Learning to teach this program. All these professionals have extensive clinical experience behind them and use the most advanced technological tools in their daily practice. Therefore, the knowledge they will offer the students will be in tune with the latest advances in the sector.





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*The faculty of this program
has a long history of research
and professional application"*

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
- ♦ Head of 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

This Postgraduate Certificate will focus on the fundamental aspects related to the integration of Machine Learning in the dental practice. 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. The program will also delve into the regulations governing this application, as well as its different social effects. In addition, this module will highlight both the role of AI in dental education and its contribution to sustainability. Graduates will implement innovative policies to ensure social welfare.



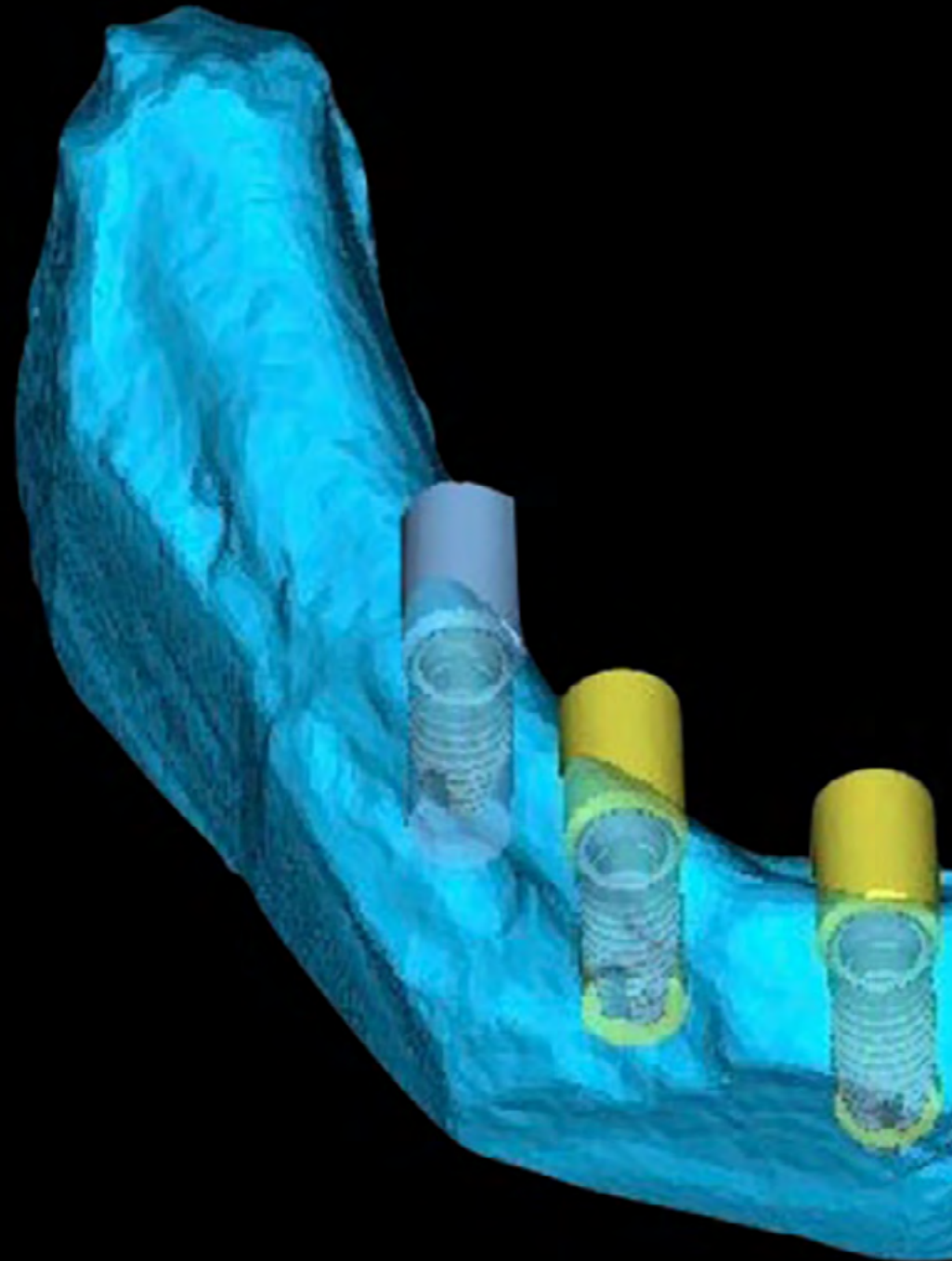


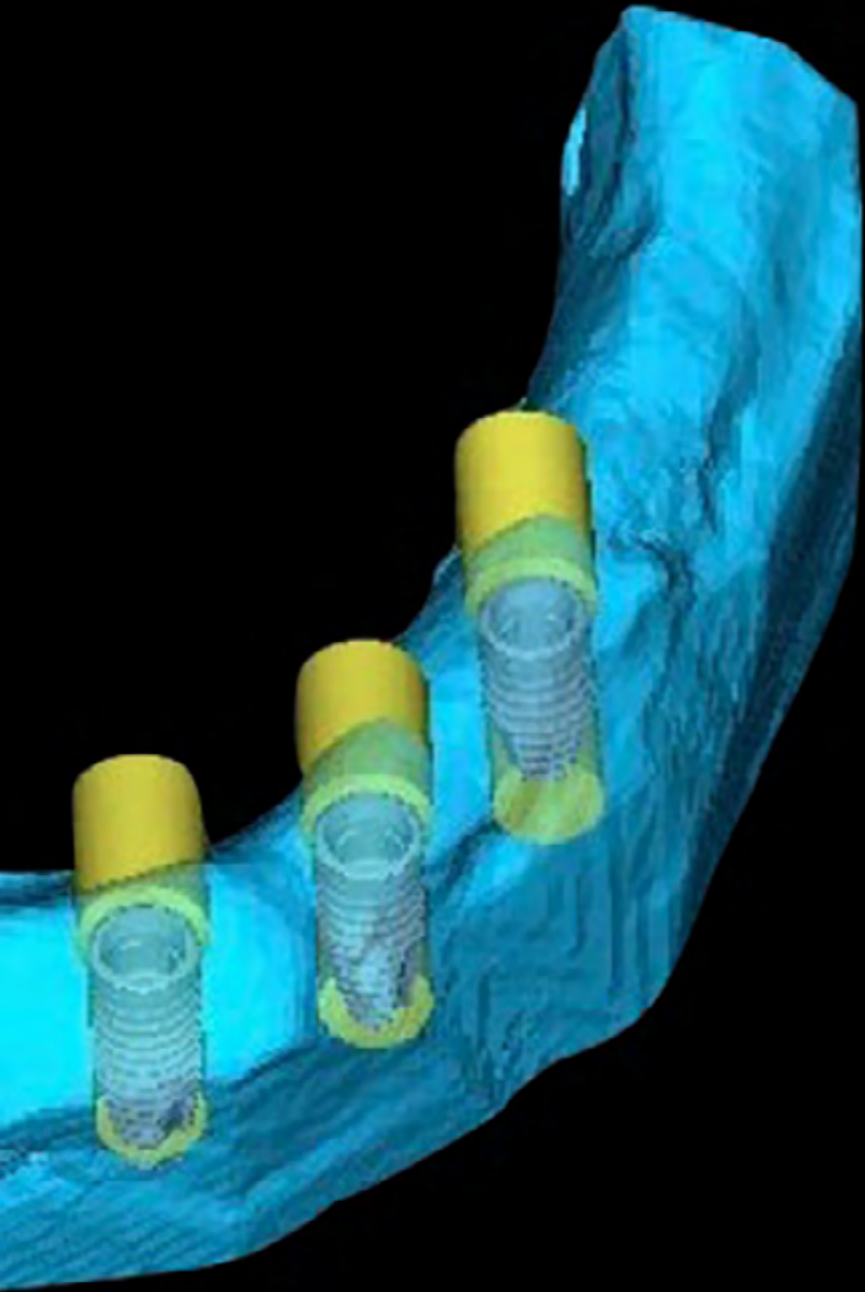
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*A high-intensity program that
will allow you to advance quickly
and efficiently in your learning"*

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



A flexible university program, without fixed schedules and with content available 24 hours a day. 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.



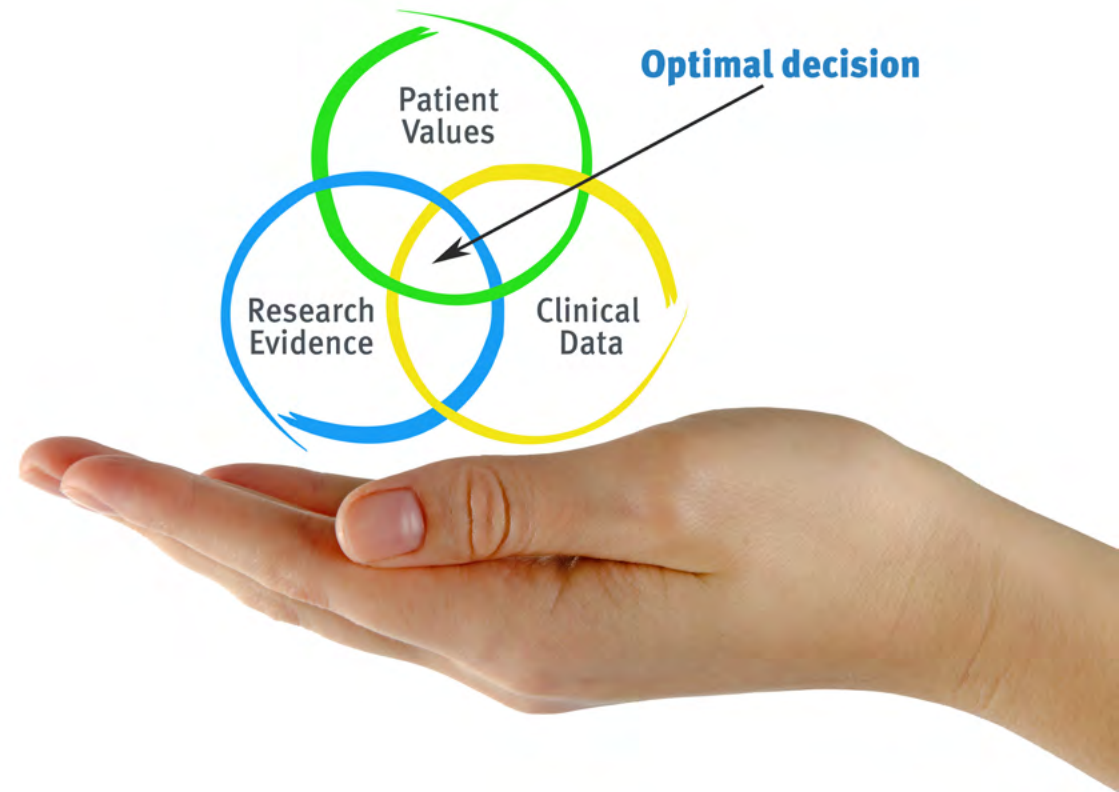
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Discover Relearning, a system that abandons conventional linear learning, to take you through cyclical teaching systems: a way of learning that has proven to be extremely effective, especially in subjects that require memorization"

At TECH we use the Case Method

In a given situation, what should a professional do? Throughout the program, students will face multiple simulated clinical cases, based on real patients, in which they will have to do research, establish hypotheses, and ultimately resolve the situation. There is an abundance of scientific evidence on the effectiveness of the method. 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. Gervas, 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 dentist's professional practice.

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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. Dentists who follow this method not only grasp concepts, but also develop their mental capacity by means of exercises to evaluate real situations and apply their 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.



Relearning Methodology

At TECH we enhance the case method with the best 100% online teaching methodology available: Relearning.

This university is the first in the world to combine 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.

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



At the forefront of world teaching, the Relearning method has managed to improve the overall satisfaction levels of professionals who complete their studies, with respect to the quality indicators of the best online university (Columbia University).

With this methodology we have trained more than 115,000 dentists with unprecedented success, in all specialties regardless of the workload. Our pedagogical methodology is developed in a highly competitive environment, with a university student body with a strong socioeconomic profile and an average age of 43.5 years old.

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



Educational Techniques and Procedures on Video

TECH introduces students to the latest techniques, the latest educational advances, and to the forefront of 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

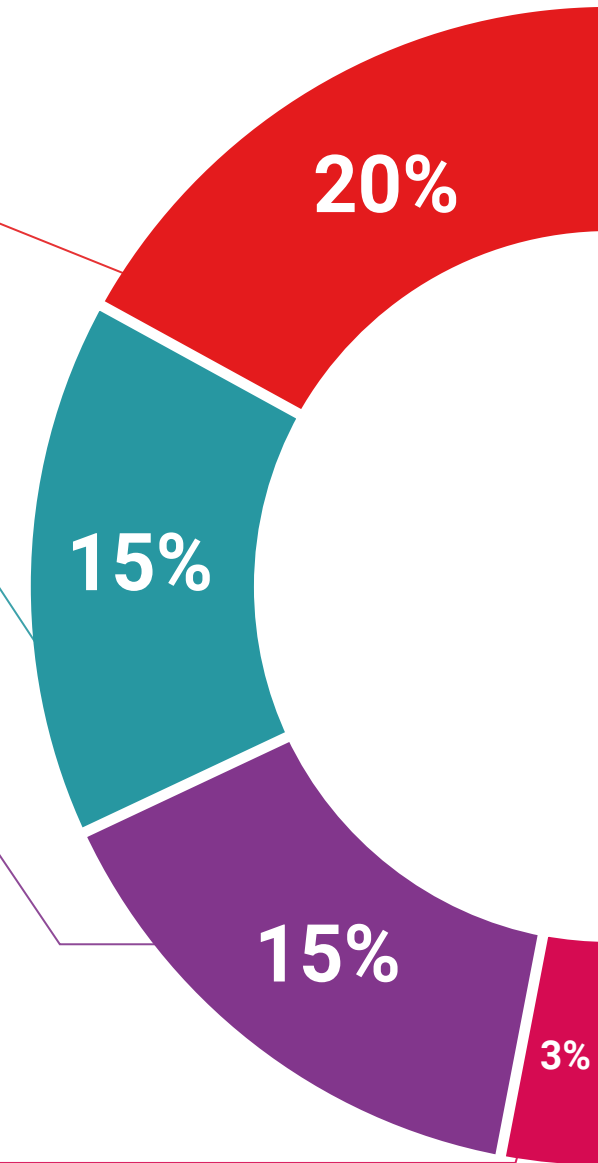
The TECH team presents the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

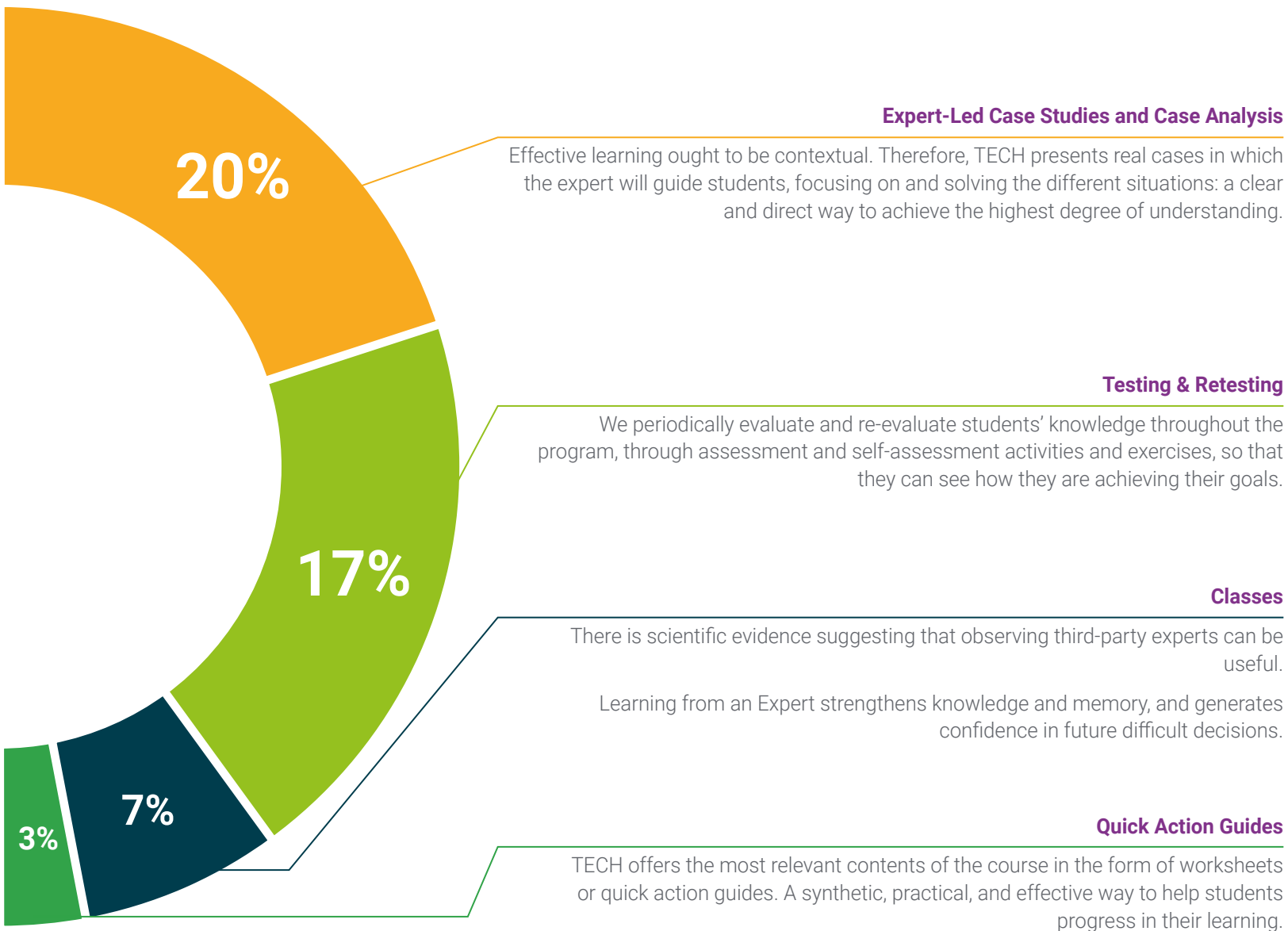
This exclusive educational system for presenting multimedia content was awarded by Microsoft as a "European Success Story".



Additional Reading

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





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.



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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 scientific 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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Postgraduate Certificate

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