Postgraduate Certificate
Practical Applications of Artificial Intelligence in Dentistry

tech technological university

Postgraduate Certificate
Practical Applications 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.techtitute.com/in/artificial-intelligence/postgraduate-certificate/practical-applications-artificial-intelligence-dentistry**

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01

Introduction

The priority of dental professionals is to provide personalized care that contributes to the well-being of patients. For this reason, practitioners seek to implement new procedures that improve the user experience, especially if their conditions are critical. In view of this, technologies such as Artificial Intelligence (AI) serve to optimize therapeutic treatments. For example, teleodontology allows dentists to perform follow-up consultations to subjects who do not have the means to travel to clinics. They can also review X-rays and other digital data remotely to plan the most appropriate therapies. In this context, TECH implements a pioneering 100% online university program for doctors to get the most out of virtual consultations.

" *Delve into the use of robotics in dental procedures thanks to this revolutionary 100% online program"*

In Modern Dentistry, dental practice management using Machine Learning is a highly relevant area. Among the reasons, its operational efficiency and optimization of resources stand out. AI can be used to automate both administrative and managerial tasks (appointment scheduling, patient records, billing, etc.) to allow practitioners to focus on direct citizen care. To benefit from this, dentists need to stay on the cutting edge of intelligent scheduling systems. However, for them this is a challenge considering that their schedules are highly busy.

In order to facilitate this update, TECH is developing a complete and updated program that will delve into the main innovations of AI in Dentistry. In this way, the syllabus will delve into dental procedures from 3D printing, robotics or digital fabrication. At the same time, the syllabus will analyze in depth the automation of administrative tasks in dental centers. Thanks to this, students will be able to offer medical assistance characterized by its precision and quality. In line with this, the didactic materials will provide strategies to enhance the management of relationships with users. In addition, the program will address how to integrate AI into education to promote adequate preparation of professionals in the long term.

TECH offers a 100% online educational environment, tailored to the needs of healthcare professionals seeking to advance their careers. It also employs the Relearning methodology, based on the repetition of key concepts to fix knowledge and facilitate learning. In this way, the combination of flexibility and a robust pedagogical approach makes it highly accessible. In addition, the only thing the experts will need is a device with Internet access, such as a cell phone, computer or tablet, to log in to the Virtual Campus.

The **Postgraduate Certificate in Practical Applications 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

Ensure proper maintenance of dental equipment with Intelligent Automation, making them safer"

You will implement the most advanced marketing strategies thatwillimproveyourrelationships with patients.

The Relearning methodology, of which TECH is a pioneer, will provide you with a flexible and effective learning experience.

" *You will be able to develop dental materials with the help of Artificial Intelligence, such as Composite Resins"*

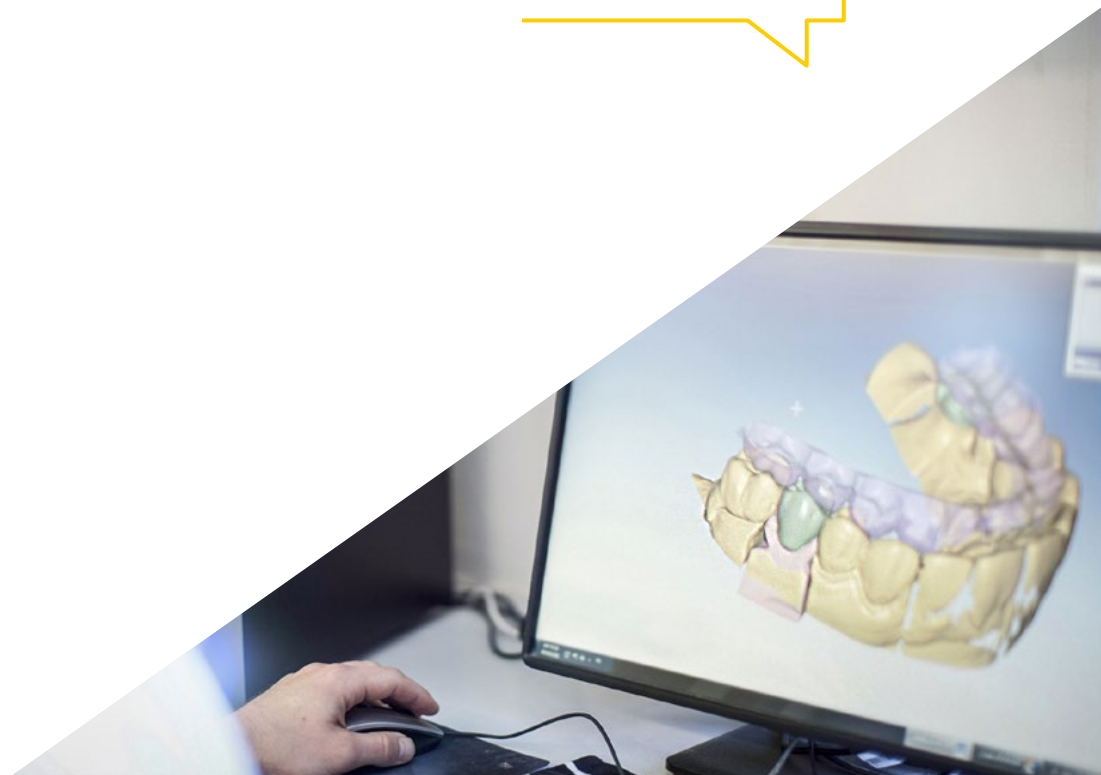The program's teaching staff includes professionals from the sector who contribute their work experience to this training program, as well as renowned specialists from leading societies and prestigious universities.

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.

02
Objectives

Upon completion of this Postgraduate Certificate, students will have developed advanced skills related to the implementation of AI in areas such as 3D printing, clinical management or automation of administrative tasks. Along the same lines, graduates will analyze patient feedback in order to optimize clinical management and offer more effective dental experiences. On the other hand, professionals will strategically implement Machine Learning in dental education and teaching, so that practitioners are equipped to adapt to technological innovations in this healthcare field.

A unique, key and decisive training experience that will boost your professional development in only 6 weeks"

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

- Develop specialized skills in the application of AI in 3D printing, robotics, dental materials development, clinical management, teleodontology, and automation of administrative tasks, addressing diverse areas of dental practice

- Acquire the ability to strategically implement AI in dental education and training, ensuring that practitioners are equipped to adapt to constantly evolving technological innovations in the dental field

- Develop specialized skills in the application of AI in 3D printing, robotics, dental materials development, and automation of administrative tasks

- Employ AI to analyze patient feeback, optimizing clinical management in dental clinics to improve patient experience

- Strategically implement AI in dental education, ensuring that professionals are equipped to adapt to the ever-evolving technological innovations in the dental field

You will achieve your objectives thanks to TECH's didactic tools, including explanatory videos and interactive summaries"
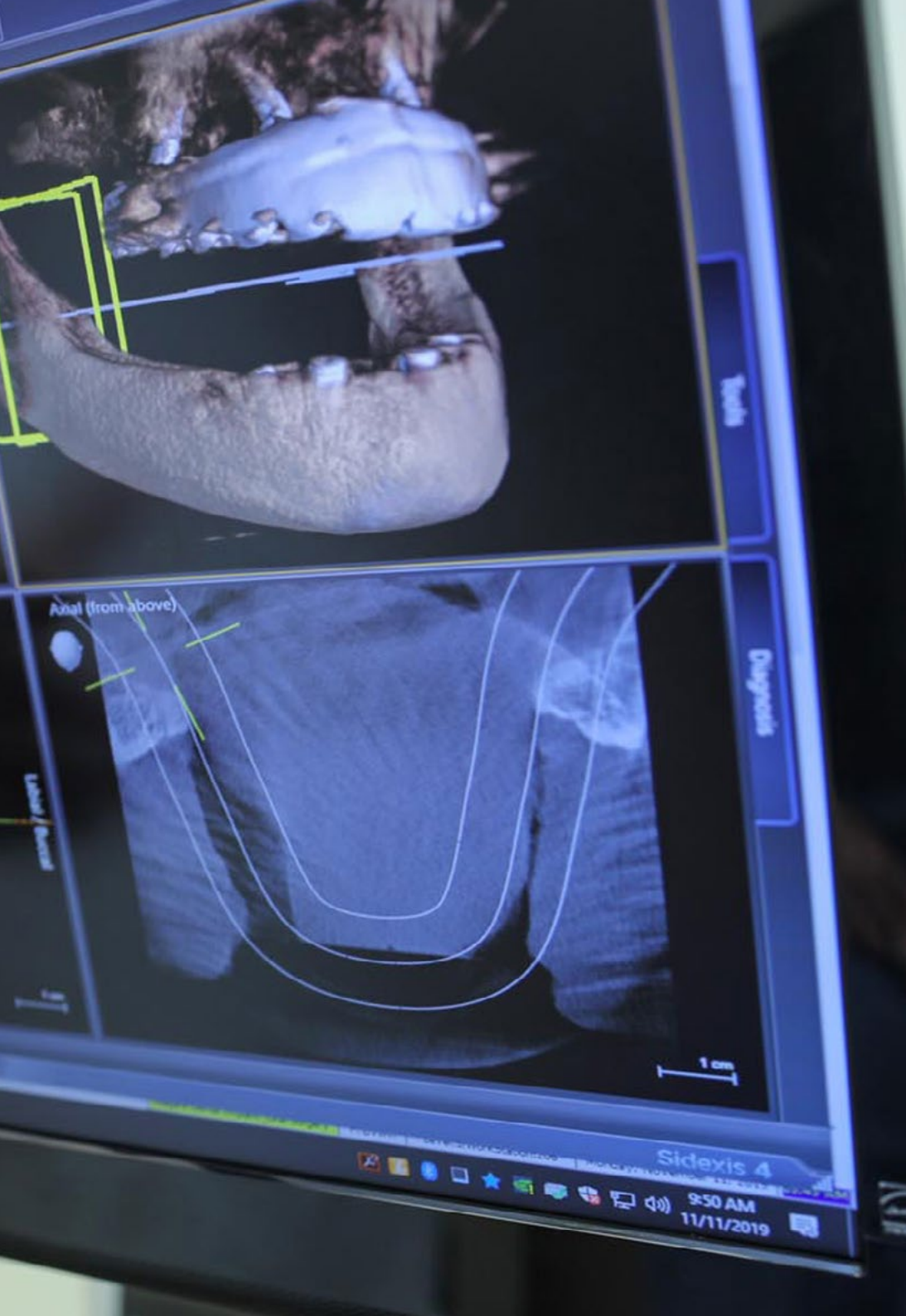
03
Course Management

In its philosophy of providing educational excellence, TECH has carefully selected a teaching staff for the delivery of this Postgraduate Certificate. These professionals have an extensive professional background, which has allowed them to be part of prestigious health institutions. Therefore, students have the guarantees they need both to broaden their knowledge and to obtain new skills that will allow them to make a quality leap in their working career.

The teaching staff of this study plan has a long track record of research and professional application"

Management

Dr. Peralta Martín-Palomino, Arturo

- CEO and CTO at Prometeus 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

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

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

04
Structure and Content

This program will focus on the integration of AI in various aspects of dental practice, in order to promote innovations and practical applications. In this line, the syllabus will delve into aspects such as 3D printing, dental fabrication and robotics assisted dental procedures. In addition, the syllabus will delve into innovations in dental materials through collaboration with Machine Learning. Virtual consultations for critically ill patients are an example of this. The didactic materials will also examine in depth the feelings in users' opinions, in order to provide health care based on quality and personalization.
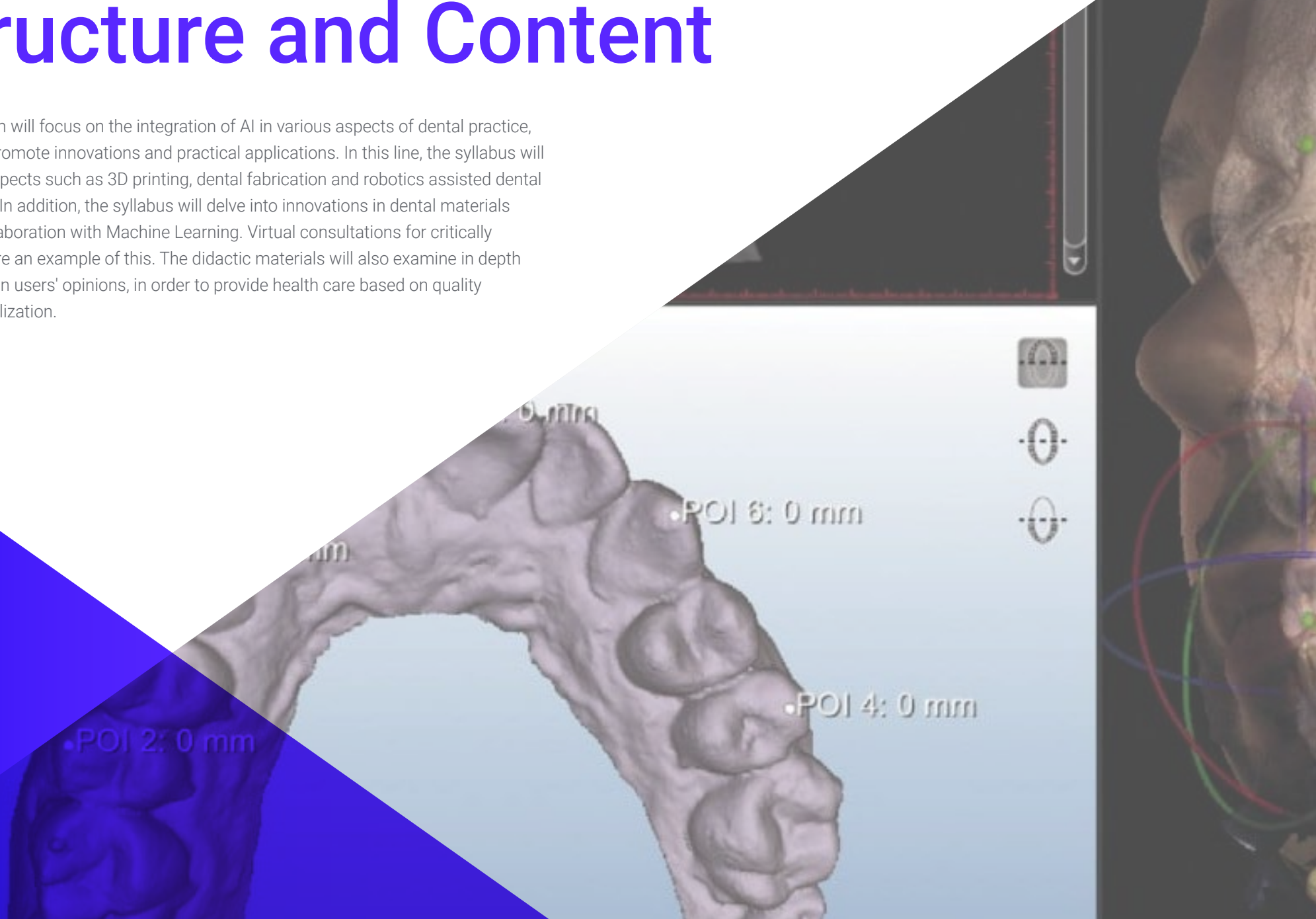
"It includes clinical cases to bring the development of the program as close as possible to the reality of dental care"

Module 1. Innovation with AI in Dentistry

1.1. 3D Printing and Digital Fabrication in Dentistry
- 1.1.1. Use of 3D Printing for the Creation of Customized Dental Prostheses.
- 1.1.2. Fabrication of Orthodontic Splints and Aligners using 3D Technology
- 1.1.3. Development of Dental Implants using 3D Printing
- 1.1.4. Application of Digital Fabrication Techniques in Dental Restoration

1.2. Robotics in Dental Procedures
- 1.2.1. Implementation of Robotic Arms for Precision Dental Surgeries
- 1.2.2. Use of Robots in Endodontic and Periodontic Procedures
- 1.2.3. Development of Robotic Systems for Dental Operations Assistance
- 1.2.4. Integration of Robotics in the Practical Teaching of Dentistry

1.3. Development of AI-assisted Dental Materials
- 1.3.1. Use of AI to Innovate in Dental Restorative Materials
- 1.3.2. Predictive Analytics for Durability and Efficiency of New Dental Materials
- 1.3.3. AI in the Optimization of Properties of Materials such as Resins and Ceramics
- 1.3.4. AI Systems to Customize Materials according to Patient's Needs

1.4. AI-enabled Dental Practice Management
- 1.4.1. AI Systems for Efficient Appointment and Scheduling Management
- 1.4.2. Data Analysis to Improve Quality of Dental Services
- 1.4.3. AI Tools for Inventory Management in Dental Clinics
- 1.4.4. Use of AI in the Evaluation and Continuous Improvement of Dental Practice

1.5. Teleodontology and Virtual Consultations
- 1.5.1. Tele-dentistry Platforms for Remote Consultations
- 1.5.2. Use of Videoconferencing Technologies for Remote Diagnosis
- 1.5.3. AI Systems for Online Preliminary Assessment of Dental Conditions
- 1.5.4. Tools for Secure Communication between Patients and Dentists

1.6. Automation of Administrative Tasks in Dental Clinics
- 1.6.1. Implementation of AI Systems for Billing and Accounting Automation
- 1.6.2. Use of AI Software in Patient Record Management
- 1.6.3. AI Tools for Optimization of Administrative Workflows
- 1.6.4. Automatic Scheduling and Reminder Systems for Dental Appointments

You can access the Virtual Campus at any time and download the contents to consult them whenever you want"
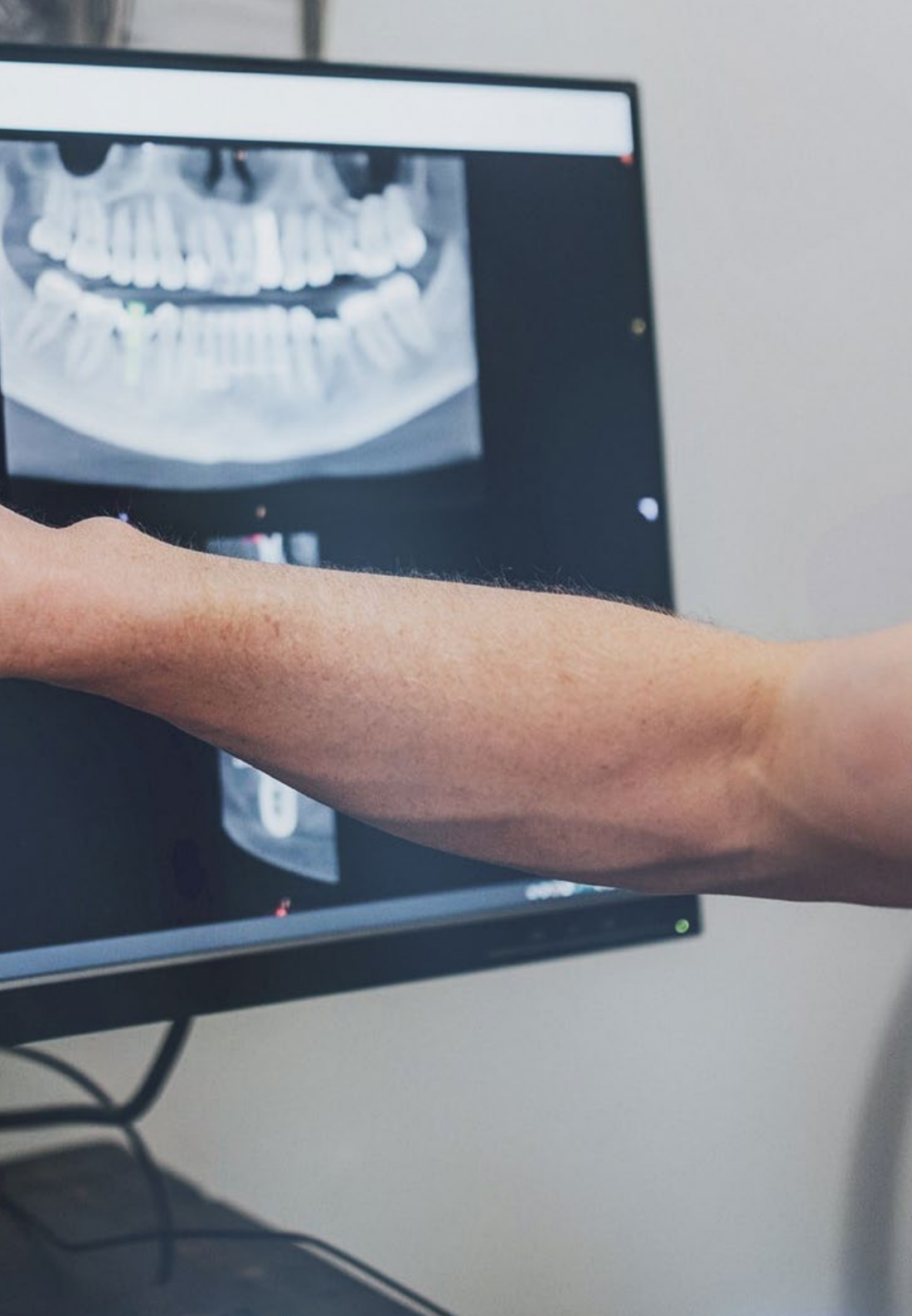
05
Methodology

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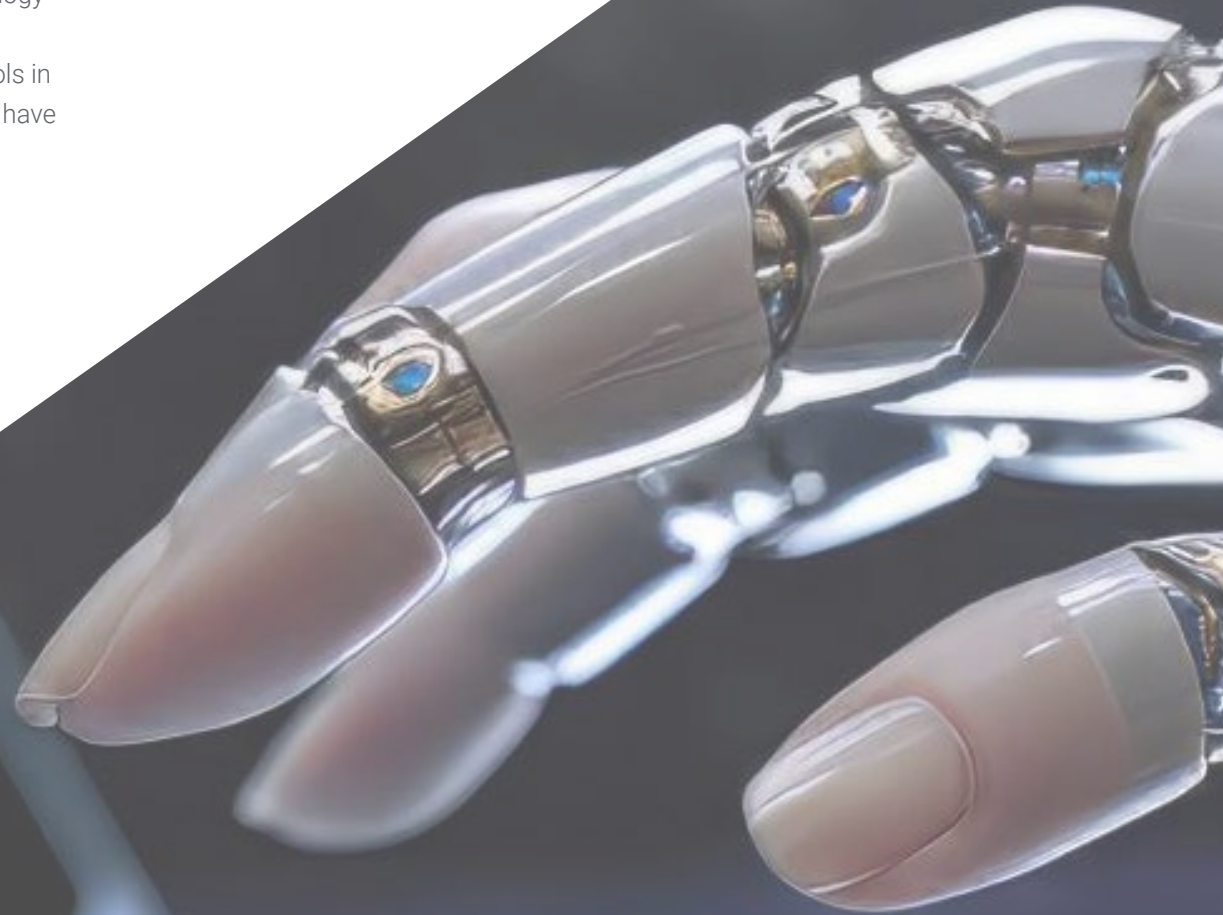
Discover Relearning, a system that abandons conventional linear learning, to take you through cyclical teaching systems: a way of learning that has proven to be extremely effective, especially in subjects that require memorization"

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.

01 learning from evidence

02 relearning from evidence

03 testing

04 learning from an expert

05 neurocognitive context dependent learning

06 Von-Restorff effect

07 case based learning through storytelling

08 competencies testing (retesting)

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.

30%

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.

10%

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.

8%

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.

20%

25%

4%

3%

06

Certificate

The Postgraduate Certificate in Practical Applications 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.

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

This **Postgraduate Certificate in Practical Applications 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 Practical Applications of Artificial Intelligence in Dentistry**

Official Nº of Hours: **150 h.**

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

POSTGRADUATE CERTIFICATE
in

Practical Applications of Artificial Intelligence in Dentistry

This is a qualification awarded by this University, equivalent to 150 hours, with a start date of dd/mm/yyyy and an end date of dd/mm/yyyy.

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

June 17, 2020

Tere Guevara Navarro
Dean

Unique TECH Code: AFWORD23S   techtitute.com/certificates

*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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