Postgraduate Certificate

Artificial Intelligence-Assisted Design in Architectural Practice

tech technological university

Postgraduate Certificate
Artificial Intelligence-Assisted Design in Architectural Practice

- » Modality: **online**
- » Duration: **6 weeks**
- » Certificate: **TECH Technological University**
- » Schedule: **at your own pace**
- » Exams: **online**

Website: **www.techtitute.com/us/engineering/postgraduate-certificate/artificial-intelligence-assisted-design-architectural-practice**

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01
Introduction

Artificial Intelligence-assisted design has transformed architectural practice, allowing professionals to combine creativity and technology to address complex challenges more efficiently. By processing large volumes of data, AI optimizes everything from spatial layout to sustainability, improving both the aesthetics and functionality of projects. This approach also facilitates the customization of spaces and automates repetitive tasks, freeing engineers to focus on more strategic solutions. In this context, TECH has designed a program in 100% online mode, offering the possibility for professionals to access the contents in a flexible way, adjusting to their own schedules. In addition, it incorporates the Relearning methodology, an innovation exclusive to this institution.

"

Through this 100% online program, you will delve into Artificial Intelligence Assisted Design in Architectural Practice, as well as its implications in the functionality and sustainability of spatial distribution"

Artificial Intelligence is redefining the field of Engineering, allowing professionals to optimize designs and processes with greater accuracy and efficiency. By analyzing large volumes of data, AI facilitates the simulation of complex scenarios, improving decision making in aspects such as energy efficiency and technical feasibility.

This academic program offers an in-depth look at Artificial Intelligence Aided Design applied to Architectural Practice, starting with the use of AutoCAD and AI tools. Here, ways to integrate these technologies to automate repetitive tasks and improve efficiency in architectural design will be analyzed, with case studies where these tools have optimized real projects. In addition, advanced generative modeling techniques with Fusion 360 will be addressed, allowing the development of complex and sustainable architectural plans.

Subsequently, the use of Optimus for design optimization using AI algorithms will be discussed, helping engineers to apply sensitivity analysis and employ solutions in real architectural projects. Also included will be parametric design and digital fabrication techniques with Geomagic Wrap, where outstanding projects that have used AI for structural innovations will be reviewed, bringing new perspectives.

Finally, issues related to adaptive and context-sensitive design with AI sensors will be addressed, allowing experts to understand how AI, combined with real-time data, can transform urban environments. In this way, the academic itinerary will be developed in a 100% online format, which will provide the flexibility to organize study time without being subject to rigid schedules or the need to physically move. This will allow graduates to access the materials at any time of the day, facilitating the balance between their work, personal and academic responsibilities. In addition, the program has TECH's characteristic Relearning methodology, which consists of preparing the professional through repetition.

The **Postgraduate Certificate in Artificial Intelligence-Assisted Design in Architectural Practice** 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 Architectural Design
- The graphic, schematic and eminently practical contents with which it is conceived gather scientific and practical information on those disciplines that are indispensable 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

Opt to enroll in this comprehensive program and master the best generative modeling techniques for the creation of complex architectural spaces. With all the TECH quality guarantees!"

"*Perfect your skills in the management of Artificial Intelligence applied to architectural design with the help of the Relearning methodology, which guarantees a successful learning process*"

The program's teaching staff includes professionals from the field who contribute their work experience to this educational 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 course. For this purpose, students will be assisted by an innovative interactive video system created by renowned experts in the field of educational coaching with extensive experience.

Enroll in this program, which ensures the effective management of parametric design techniques and digital fabrication, thanks to the extensive library of innovative multimedia resources offered by TECH.

Don't miss out on this unique opportunity! You will manage Optimus, the leading Artificial Intelligence tool for architectural design, which will serve you for the correct optimization of sustainable and complex designs.

02
Objectives

The development of the design of architectural spaces has undergone a remarkable transformation with the incorporation of Artificial Intelligence. Thanks to this technology, advanced tools and techniques have been created to regulate, improve and update the algorithms used to optimize the design of spaces. Therefore, this Postgraduate Certificate has been designed with the objective of preparing engineers, ensuring that they master the necessary competencies to excel in this field. In addition, it seeks to offer comprehensive and practical knowledge, enabling professionals to address current and future challenges in AI-assisted architecture.

You will delve into the use of software, such as AutoCAD and Fusion 360, to optimally create parametric models that improve the quality of architectural designs and spaces. Enroll now!"

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
- Manage advanced Artificial Intelligence tools to optimize architectural processes such as parametric design
- Apply Generative Modeling techniques to maximize efficiency in infrastructure planning and improve the energy performance of buildings

Specific Objectives

◆ Utilize AutoCAD and Fusion 360 software to create generative and parametric models that optimize the architectural design process

◆ Have a holistic understanding of ethical principles in the use of AI in design, ensuring that architectural solutions are both responsible and sustainable

Get into the design of sustainable spaces and collaborate in a responsible way with the environment"

03
Course Management

Teachers specialized in Artificial Intelligence assisted design have gathered the most relevant and updated information to offer engineers a cutting-edge academic program, with the most rigorous and updated scientific agenda at the moment. This team is composed of experts with a solid academic and professional background, dedicating a large part of their careers to research and teaching in the field of engineering, positioning themselves as national references in their area. In addition, their commitment to quality teaching guarantees a first class preparation, with the best teaching staff TECH has to offer.

" *The faculty will provide you with a solid and advanced theoretical understanding, complemented by a practical approach that demonstrates how AI can revolutionize design processes in architectural practice"*

Management

Dr. Peralta Martín-Palomino, Arturo

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

Professors

Mr. Peralta Vide, Javier

- Technological Coordinator and Content Developer at Aranzadi Laley Formación
- Collaborator at CanalCreativo
- Collaborator at Dentsu
- Collaborator at Ai2
- Collaborator at BoaMistura
- Freelance Architect at Editorial Nivola, Biogen Technologies, Releaf, etc.
- Specialization by Revit Architecture Metropa School
- Graduate in Architecture and Urbanism from the University of Alcalá

Ms. Martínez Cerrato, Yésica

- Responsible for Technical Training at Securitas Seguridad España
- Education, Business and Marketing Specialist
- Product Manager in Electronic Security at Securitas Direct
- Business Intelligence Analyst at Ricopia Technologies
- Computer Technician and Responsible for OTEC computer classrooms at the University of Alcalá de Henares
- Collaborator in the ASALUMA Association
- Degree in Electronic Communications Engineering at the Polytechnic School, University of Alcalá de Henares.

04
Structure and Content

TECH's academic itinerary offers engineering professionals the possibility to specialize in the design of spaces with the help of tools and techniques based on Artificial Intelligence algorithms, through a very complete syllabus that covers from AI-assisted AutoCAD case studies to parametric design and digital fabrication with Geomagic Wrap. Relevant and totally new aspects for industry experts who want to expand their qualifications in this field with the best academic program of the moment. A unique study opportunity that you cannot miss.
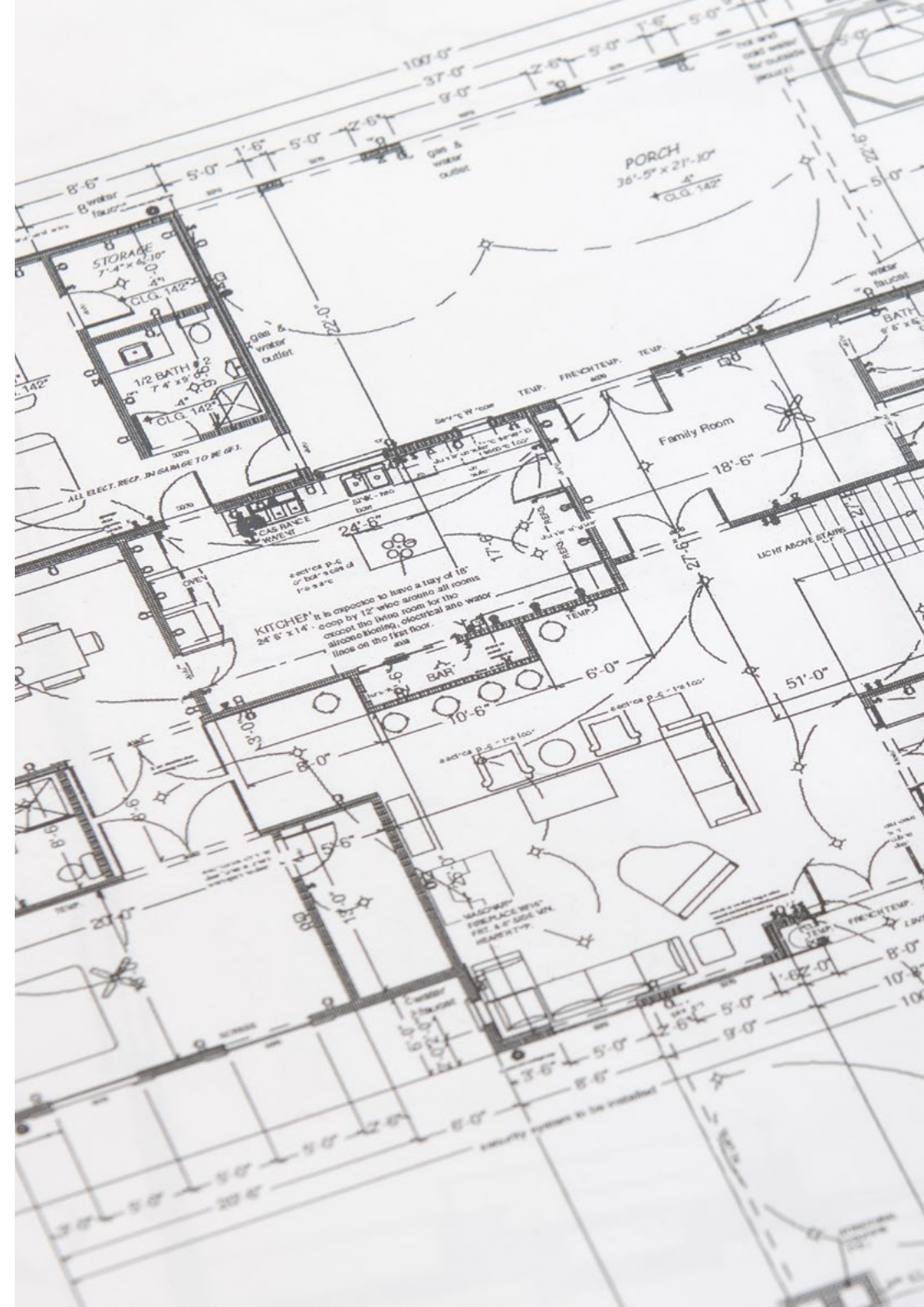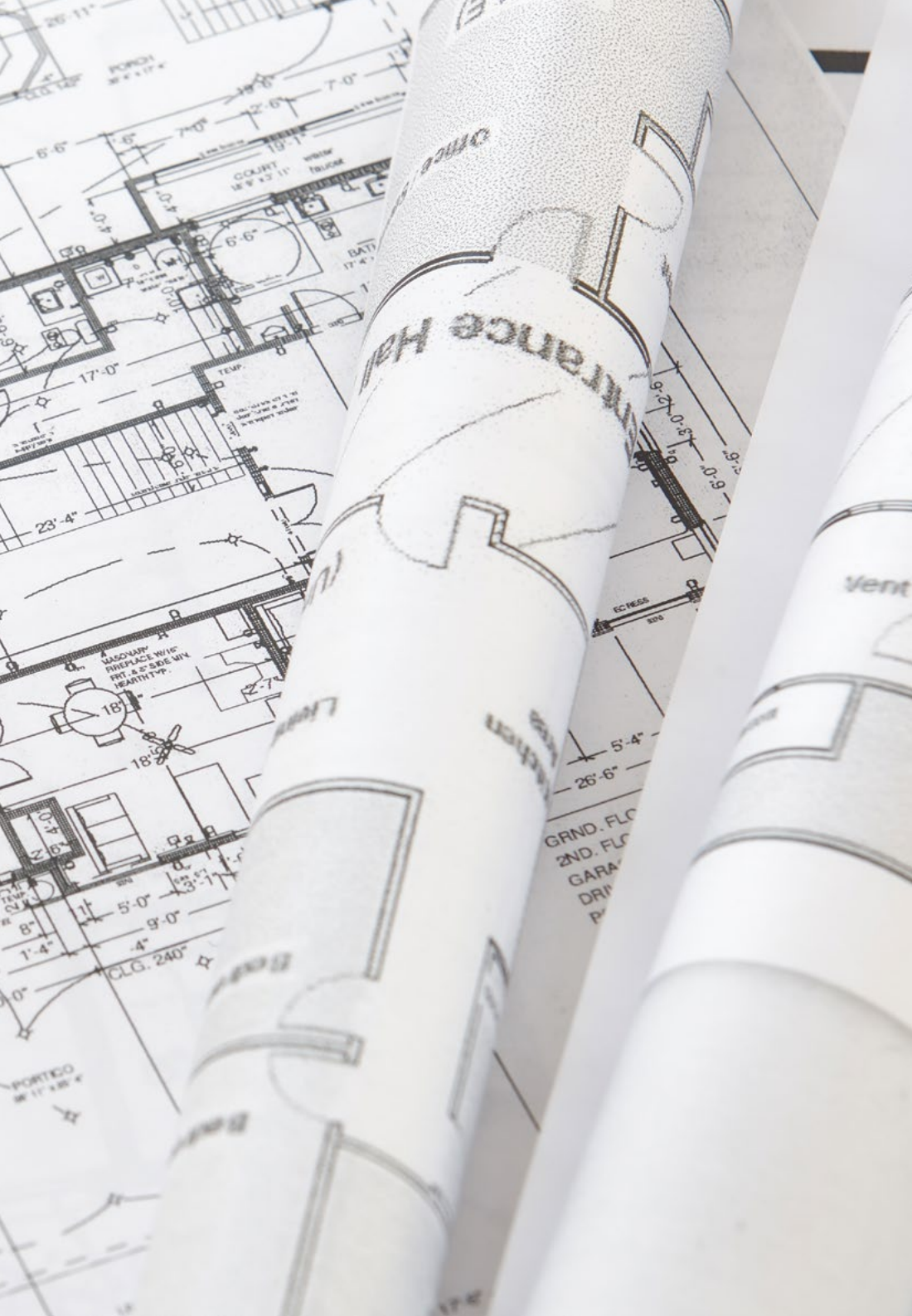
Complement your professional knowledge by mastering design optimization strategies based on AI algorithms through this comprehensive curriculum"

Module 1. Artificial Intelligence-Assisted Design in Architectural Practice

1.1. Advanced AutoCAD Applications with AI

   1.1.1. Integration of AutoCAD with AI Tools for Advanced Design

   1.1.2. Automation of Repetitive Tasks in Architectural Design with AI

   1.1.3. Case Studies Where AI-Assisted AutoCAD Has Optimized Architectural Projects

1.2. Advanced Generative Modeling with Fusion 360

   1.2.1. Advanced Generative Modeling Techniques Applied to Complex Projects

   1.2.2. Using Fusion 360 to Create Innovative Architectural Designs

   1.2.3. Examples of Applying Generative Modeling in Sustainable and Adaptive Architecture

1.3. Optimizing Designs with AI in Optimus

   1.3.1. Optimization Strategies for Architectural Design Optimization Using AI Algorithms in Optimus

   1.3.2. Sensitivity Analysis and Exploration of Optimal Solutions in Real Projects

   1.3.3. Review of Industry Success Stories Using Optimus for AI-Based Optimization

1.4. Parametric Design and Digital Fabrication with Geomagic Wrap

   1.4.1. Advances in Parametric Design with AI Integration Using Geomagic Wrap

   1.4.2. Practical Applications of Digital Fabrication in Architecture

   1.4.3. Outstanding Architectural Projects Using AI-Assisted Parametric Design for Structural Innovations

1.5. AI-Assisted Parametric Design for Structural Innovations

   1.5.1. Adaptive and Context Sensitive Design with AI Sensors

   1.5.2. Implementing Adaptive Design Using AI and Real-Time Data

   1.5.3. Examples of Ephemeral Architecture and Urban Environments Designed with AI

1.6. Analysis of How Adaptive Design Influences the Sustainability and Efficiency of Architectural Projects

   1.6.1. Simulation and Predictive Analytics in CATIA for Architects

   1.6.2. Advanced Use of CATIA for Architectural Simulation

   1.6.3. Implementing Predictive Analytics in Significant Architectural Projects

"Update your daily practice with the latest academic trends in Artificial Intelligence in architectural design, through the best didactic materials, at the forefront of technology and academia"

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.

contains the most complete and up-to-date program on the market. The most important features include:

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.

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:
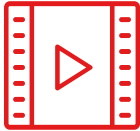
Study Material

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.

20%

25%

4%

3%
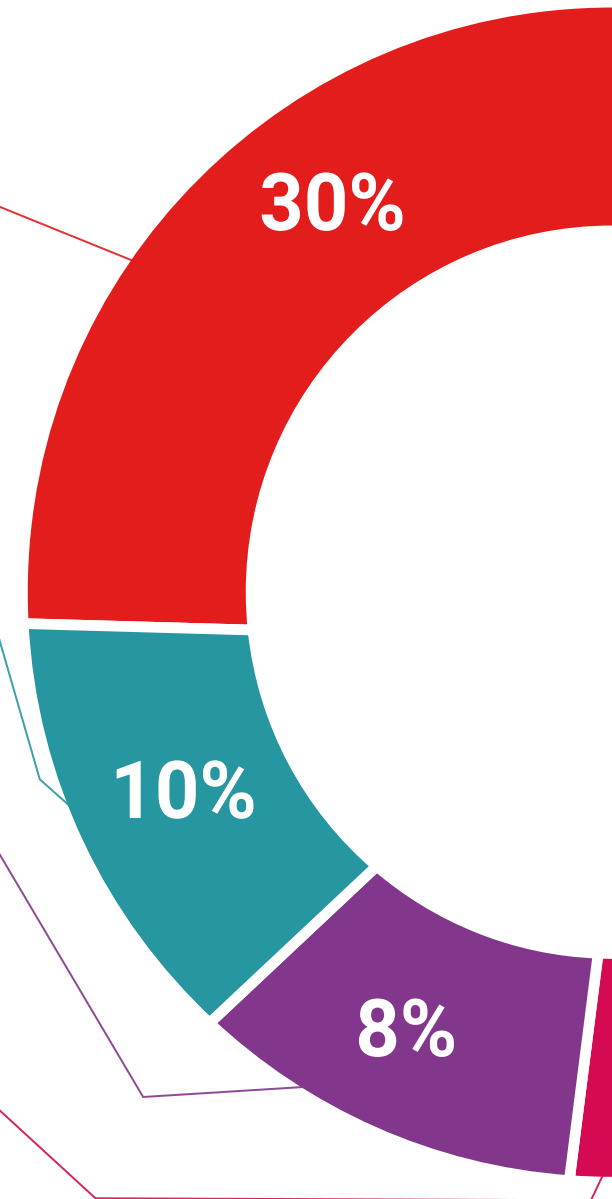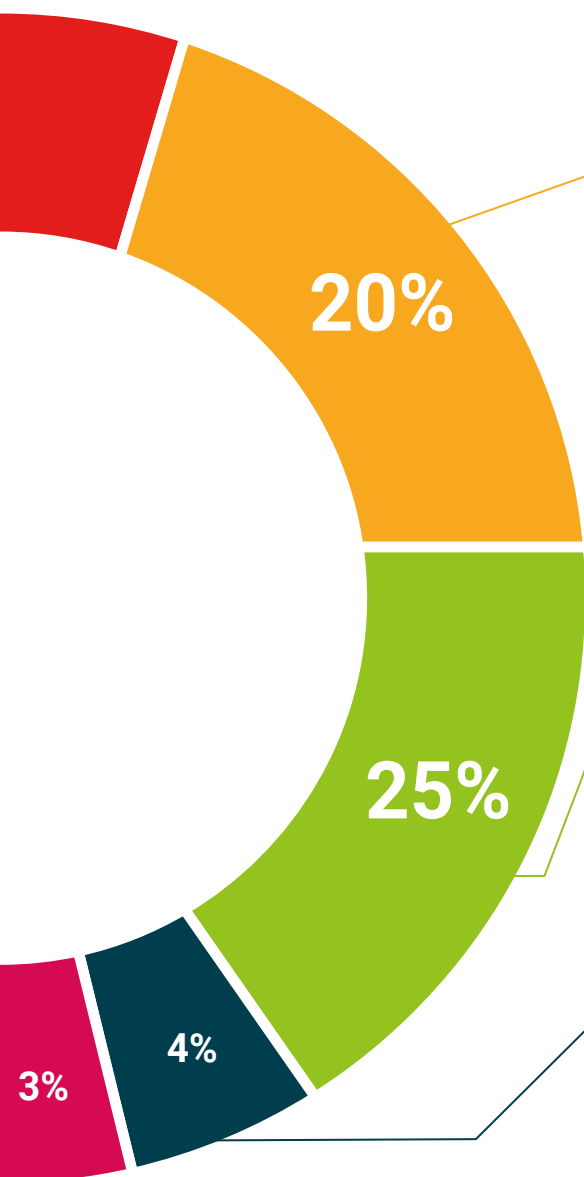
Case Studies

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 Artificial Intelligence-Assisted Design in Architectural Practice guarantees, 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 Artificial Intelligence-Assisted Design in Architectural Practice** contains the most complete and up-to-date scientific program on the market.
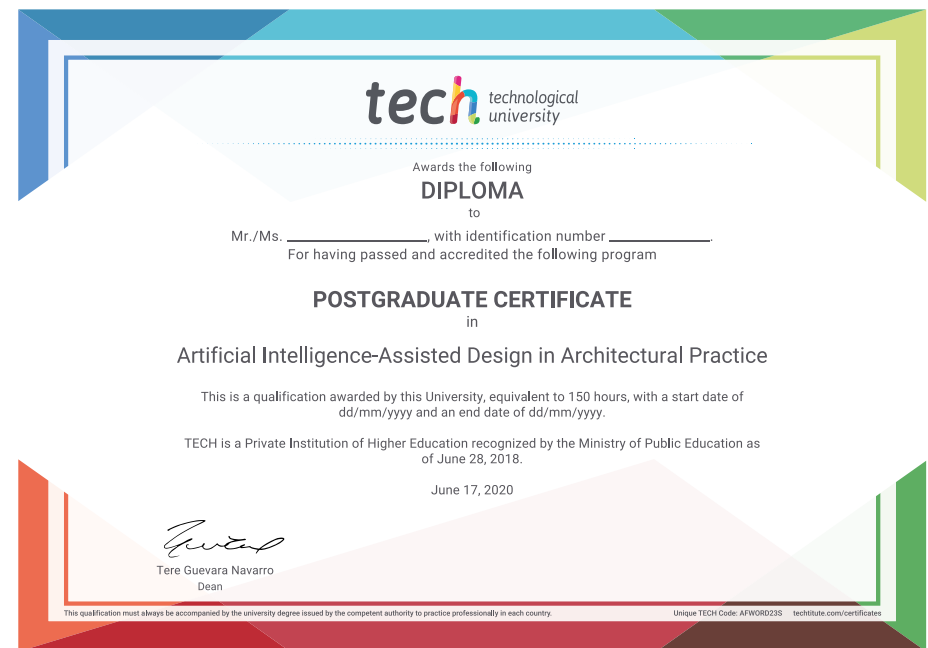
After the student has passed the assessments, they will receive their corresponding **Postgraduate Certificate** issued by **TECH Technological University** via tracked delivery*.

The diploma 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 Artificial Intelligence-Assisted Design in Architectural Practice**

Modality: **online**

Duration: **6 weeks**

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Awards the following

DIPLOMA

to

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

POSTGRADUATE CERTIFICATE

in

Artificial Intelligence-Assisted Design in Architectural Practice

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

This qualification must always be accompanied by the university degree issued by the competent authority to practice professionally in each country.   Unique TECH Code: AFWORD23S   techtitute.com/certificates

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

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