Postgraduate Certificate
Space Optimization and Energy Efficiency with Artificial Intelligence

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Postgraduate Certificate
Space Optimization and Energy Efficiency with Artificial Intelligence

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

Website: **www.techtitute.com/us/engineering/postgraduate-certificate/space-optimization-energy-efficiency-artificial-intelligence**

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01
Introduction

Artificial Intelligence has transformed many aspects of society, one of which lies in the way spaces are optimized and energy efficiency is managed in built environments. By analyzing large volumes of data in real time, AI makes it possible to automatically adjust key systems, such as HVAC, improving energy performance without compromising user comfort. It also facilitates predictive maintenance, detecting failures before they occur and extending the useful life of equipment. This is how this program implemented by TECH was created, which offers a 100% online format designed to fit the busy schedule of engineers, allowing them to access the contents according to their availability.

Enroll in this 100% online program, which will guarantee you a complete and updated preparation in the efficient management of energy environments through Artificial Intelligence tools"

Artificial Intelligence and energy management in space optimization are offering innovative solutions to improve operational efficiency and reduce energy consumption. Through real-time analysis and automation of key systems, AI automatically adjusts consumption according to the needs and occupancy of spaces. This not only lowers costs, but also prolongs the life of equipment.

In this Postgraduate Certificate, engineers will master the use of Autodesk Revit to optimize space and improve energy efficiency, applying advanced AI algorithm techniques and reviewing successful case studies. They will then be able to use SketchUp and Trimble to perform detailed energy analysis, developing precise metrics that will enable them to set energy performance goals for their projects.

The program will also focus on AI-assisted bioclimatic design, where strategies for maximizing energy efficiency through solar orientation and passive design will be addressed. Practical AI applications that optimize the thermal comfort and sustainability of buildings will also be discussed. In addition, the management of sustainable materials and renewable energies will be discussed, analyzing how AI supports the development of technological innovations in this area.

Similarly, engineers will explore the impact of AI in urban planning and energy management, delving into technologies such as WattPredictor and Google DeepMind, as well as their impact on the efficiency of large buildings and cities. The curriculum will conclude with a reflection on the future of AI in architecture, identifying up-to-date trends that will continue to shape sustainable urban design.

Therefore, TECH has developed a comprehensive 100% online program that will allow graduates to update their knowledge, positioning them at the forefront of the latest trends and advances. Additionally, it will be based on the revolutionary Relearning methodology, consisting of the reiteration of key concepts for an optimal assimilation of the contents.

The **Postgraduate Certificate in Space Optimization and Energy Efficiency with Artificial Intelligence** 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 Engineering focused on Artificial Intelligence
- 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

Stand out in this sector of Engineering with the support of tools such as SketchUp and Trimble, with which you will be able to develop optimal energy analyses, with all the quality guarantees of TECH!"

"

You will expand your knowledge in space optimization by reviewing cases where clean energy systems are articulated, thanks to an extensive library of innovative multimedia resources"

You will be supported by the institution's revolutionary Relearning methodology, a pioneer in the institution, which promises unique cutting-edge learning through continuous repetition of the most relevant ideas.

You will delve into the latest trends in sustainable urban design, with the help of AI-assisted urban planning, always hand in hand with the best online university in the world, according to Forbes: TECH.
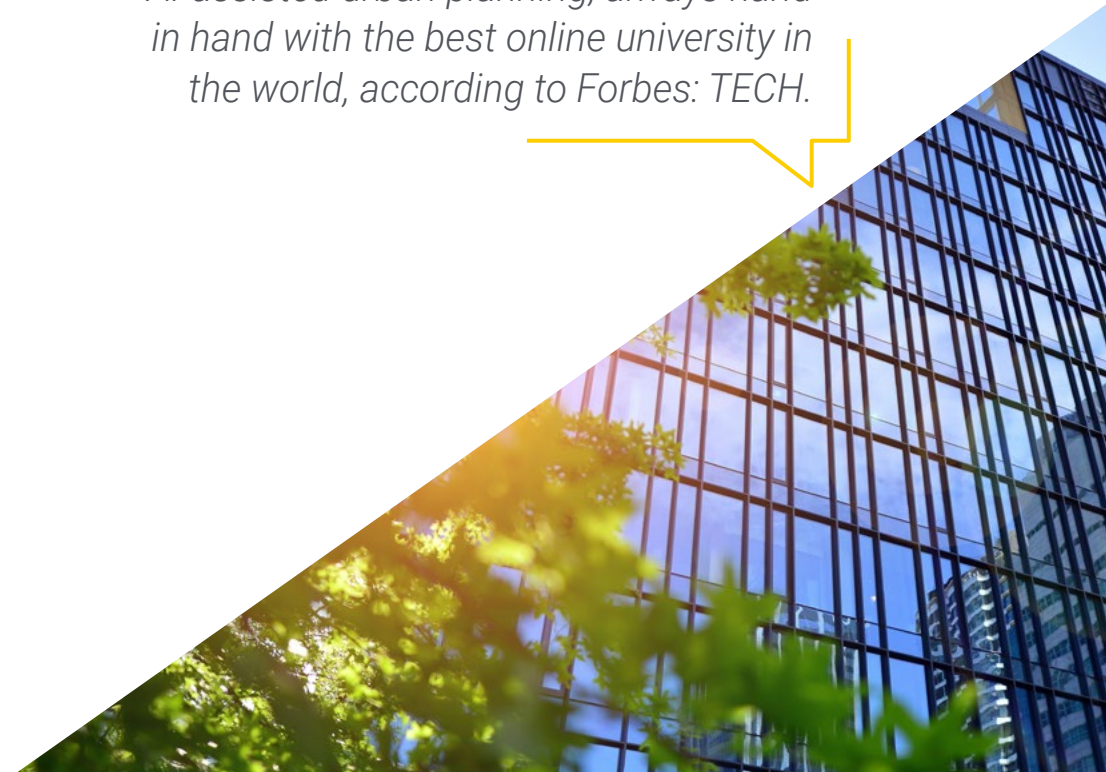
The program's teaching staff includes professionals from the field who contribute their work experience to this educational program, as well as renowned specialists from leading societies and prestigious universities.

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.

02
Objectives

Engineers who wish to improve their competitiveness will find in this Postgraduate Certificate the necessary information to develop specific skills that will allow them to work successfully in the optimization of spaces and sustainable urban design. For this, TECH has established relevant objectives on the strategic keys to improve energy efficiency with the help of Artificial Intelligence, so that the engineer will have, thanks to this program, a working guide that will be essential for their daily work.

Familiarize yourself with the objectives that characterize this comprehensive university program, thanks to which you will delve into the practical applications of solar orientation and passive design in energy efficiency"

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

- Implement bioclimatic design strategies and AI-assisted technologies to improve the energy efficiency of architectural initiatives
- Acquire skills in the use of simulation tools to improve energy efficiency in urban planning and architecture

"You will apply advanced Artificial Intelligence techniques for energy auditing and certification of your projects, so that you can maximize infrastructure planning and energy performance"

03
Course Management

The teachers of this Postgraduate Certificate are professionals with extensive experience, who support higher and postgraduate studies as an indispensable tool to improve the specialization of students. Therefore, the teaching staff has compiled the latest and most relevant information in the field of Artificial Intelligence-assisted urban design, offering the necessary guidelines to know the key tactics to be applied to address the optimization of spaces and energy efficiency in the architectural projects of graduates.

"
The teaching team will guide you in the application of optimization and simulation techniques to improve the use of resources and reduce energy consumption in different architectural and industrial environments"

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

04
Structure and Content

The structure of the academic itinerary of this program has been carefully designed so that engineers can manage their own preparation efficiently. Therefore, the flexibility of its 100% online format will allow them to carry out a detailed analysis of energy efficiency metrics, using advanced tools such as SketchUp and Trimble, which are essential in today's projects. In addition, you will have the opportunity to delve into specific examples of buildings that optimize thermal comfort through AI-assisted design, acquiring a practical and up-to-date perspective.

In just 6 weeks you will have mastered the use of certain Artificial Intelligence techniques and tools to promote a cultural change towards sustainability in the field of Architecture"

Module 1. Space Optimization and Energy Efficiency with Artificial Intelligence

1.1.   Optimizing Spaces with Autodesk Revit and AI
   1.1.1.   Using Autodesk Revit and AI for Spatial Optimization and Energy Efficiency
   1.1.2.   Advanced Techniques for Improving Energy Efficiency in Architectural Designs
   1.1.3.   Case Studies of Successful Projects Combining Autodesk Revit with AI
1.2.   Analysis of Energy Efficiency Metrics and Data with SketchUp and Trimble
   1.2.1.   Applying SketchUp and Trimble Tools for Detailed Energy Analysis
   1.2.2.   Developing Energy Efficiency Metrics Using AI
   1.2.3.   Strategies for Setting Energy Efficiency Goals for Architectural Projects
1.3.   Bioclimatic Design and AI-Optimized Solar Orientation
   1.3.1.   AI-Assisted Bioclimatic Design Strategies for Maximizing Energy Efficiency
   1.3.2.   Examples of Buildings Using AI-Guided Design to Optimize Thermal Comfort
   1.3.3.   Practical Applications of AI in Solar Orientation and Passive Design
1.4.   AI-Assisted Sustainable Materials and Technologies with Cityzenit
   1.4.1.   Innovation in Sustainable Materials Supported by AI Analysis
   1.4.2.   Using AI to Develop and Apply Recycled and Low-Environmental-Impact Materials
   1.4.3.   Study of Projects Using Renewable Energy Systems Integrated with AI
1.5.   Urban Planning and Energy Efficiency with WattPredictor and AI
   1.5.1.   AI Strategies for Energy Efficiency in Urban Design
   1.5.2.   Implementing WattPredictor to Optimize Energy Use in Public Spaces
   1.5.3.   Successful Cases of Cities Using AI to Improve Urban Sustainability
1.6.   Intelligent Energy Management with Google DeepMind's Energy
   1.6.1.   Applications of DeepMind Technologies for Energy Management
   1.6.2.   Implementing AI for Energy Consumption Optimization
   1.6.3.   Assessment of Cases Where AI Has Transformed Energy Management in Communities and Buildings

You will control DeepMind technology applications for energy management to maximize resource efficiency and minimize environmental impact"

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.

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.

30%

10%

8%

20%

25%

4%

3%
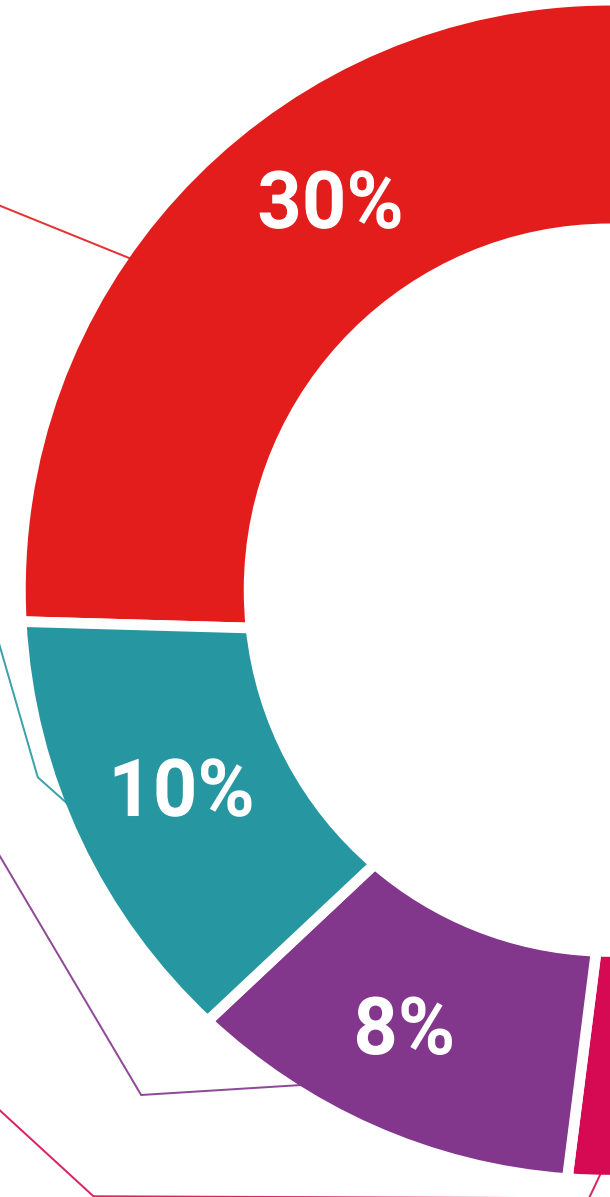
Case Studies

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 Space Optimization and Energy Efficiency with Artificial Intelligence guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Certificate issued by TECH Global University.

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

This private qualification will allow you to obtain a **Postgraduate Certificate in Space Optimization and Energy Efficiency with Artificial Intelligence** endorsed by **TECH Global University**, the world's largest online university.

TECH Global University, is an official European University publicly recognized by the Government of Andorra *(official bulletin)*. Andorra is part of the European Higher Education Area (EHEA) since 2003. The EHEA is an initiative promoted by the European Union that aims to organize the international training framework and harmonize the higher education systems of the member countries of this space. The project promotes common values, the implementation of collaborative tools and strengthening its quality assurance mechanisms to enhance collaboration and mobility among students, researchers and academics.

This **TECH Global University** private qualification, is a European program of continuing education and professional updating that guarantees the acquisition of competencies in its area of knowledge, providing a high curricular value to the student who completes the program.

Title: **Postgraduate Certificate in Space Optimization and Energy Efficiency with Artificial Intelligence**

Modality: **online**

Duration: **6 weeks**

Accreditation: **6 ECTS**

tech global university

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

Postgraduate Certificate in Space Optimization and Energy Efficiency with Artificial Intelligence

This is a private qualification of 180 hours of duration equivalent to 6 ECTS, with a start date of dd/mm/yyyy and an end date of dd/mm/yyyy.

TECH Global University is a university officially recognized by the Government of Andorra on the 31st of January of 2024, which belongs to the European Higher Education Area (EHEA).

In Andorra la Vella, on the 28th of February of 2024

Dr. Pedro Navarro Illana
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 Global University will make the necessary arrangements to obtain it, at an additional cost.

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