Postgraduate Certificate
Artificial Intelligence in Systems Engineering and Computer Science

tech *technological university*

![tech technological university]

Postgraduate Certificate
Artificial Intelligence in Systems Engineering and Computer Science

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

Website: www.techtitute.com/us/artificial-intelligence/postgraduate-certificate/artificial-intelligence-systems-engineering-computer-science

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01
Introduction

A survey conducted by the Spanish Foundation for Science and Technology shows that 15% of Spaniards are unaware of the applications of Artificial Intelligence. The truth is that this technological field is present in almost all areas of society. For example, its tools are used in the healthcare area to diagnose diseases, personalize medical treatments or discover new drugs. It is also palpable in the environmental sector for the management of natural resources, the prediction of climatic phenomena and the analysis of satellite data. Given its benefits, more and more entrepreneurs are deciding to specialize in this field. For this reason, TECH has launched a 100% online educational program focused on Intelligence in Systems Engineering.
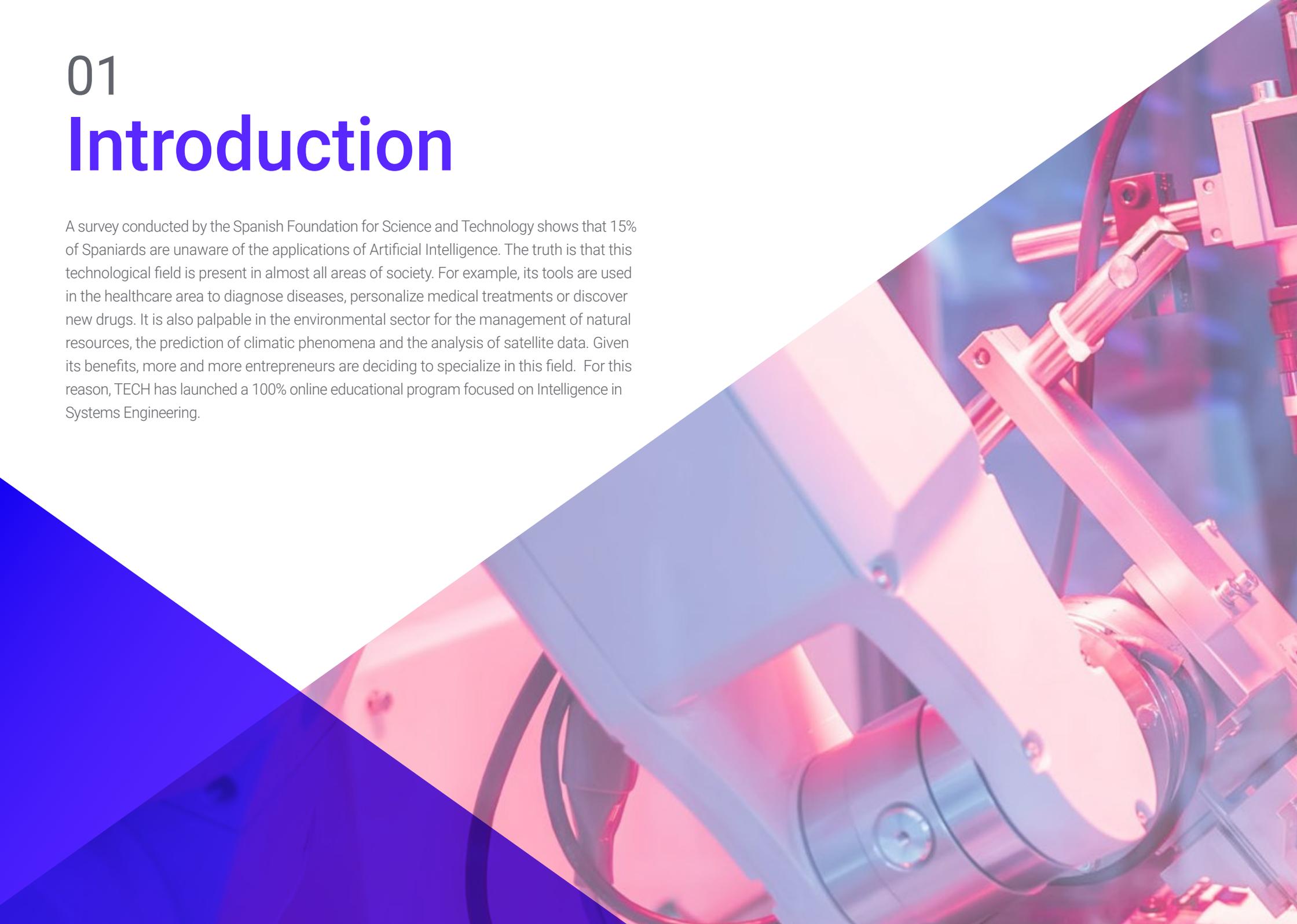
"Artificial Intelligence is constantly evolving! Thanks to this online Postgraduate Certificate, you will take advantage of its opportunities and develop innovative solutions to address real-world challenges"

Digital Transformation and Industry 4.0 have caused Artificial Intelligence to have a direct impact on Systems and Computer Engineering. Both subjects complement each other to offer numerous opportunities in a variety of employment sectors. Among its advantages is its ability to automate processes. In this regard, these tools help to improve factors such as efficiency and productivity. For example, they can mechanize software development tasks, software testing, information systems management, among others. In addition, data analysis is essential to understand the performance of models and make highly informed decisions.

In this context, TECH implements a complete program in Artificial Intelligence in Systems Engineering and Computer Science. Designed by experts in these disciplines, the curriculum will delve into the management of the most effective tools of Deep Learning, Machine Learning and Natural Language Processing. Students will be able to incorporate them immediately into their practice to optimize their projects. At the same time, the syllabus will delve into Neural Networks in order to develop advanced learning algorithms. In addition, the program will examine Robotic Process Automation to ensure efficient process automation. Throughout the academic itinerary, the didactic materials will consider the ethical implications of Artificial Intelligence for professionals to use it in a responsible way for all parties involved.

It should be noted that the Postgraduate Certificate is supported by the innovative Relearning methodology, based on the gradual reiteration of concepts throughout the syllabus. In addition, the academic contents will be taught by a renowned faculty, which masters all the complexities of Artificial Intelligence in Systems Engineering and Computer Science. Moreover, students will not have to worry about rigid academic schedules or having to travel to any study center, since the program has a 100% online format.

This **Postgraduate Certificate in Artificial Intelligence in Systems Engineering and Computer Science** contains the most complete and up-to-date program on the market. The most important features include:

- The development of practical cases presented by experts in artificial intelligence in systems engineering and computer science
- The graphic, schematic, and practical contents with which they are created, provide scientific and practical information on the disciplines that are essential for professional practice
- Practical exercises where the self-assessment process can be carried out to improve learning
- Its special emphasis on innovative methodologies
- Theoretical lessons, questions to the expert, debate forums on controversial topics, and individual reflection assignments
- Content that is accessible from any fixed or portable device with an Internet connection

You will handle Machine Learning through 150 hours of the best digital teaching. Bet on TECH!"

"
You will delve into the Data Ingestion process and be able to improve the training of your models"

With this university program, you will enjoy a learning system based on repetition. You will have a totally natural and progressive teaching!

You will draw productive lessons from the analysis of real cases in simulated learning environments.

The program's teaching staff includes professionals from the industry 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.

02
Objectives

This program will provide students with a robust understanding of the fundamental principles of Artificial Intelligence, as well as Systems Engineering and Computer Science. Graduates will enrich their daily practice by acquiring new competencies. Professionals will be able to apply in a practical framework the most avant-garde techniques and algorithms in these fields. In this way, they will develop innovative proposals in areas such as system optimization, data analysis or image processing. The experts will be equipped with the most effective resources to successfully solve any challenges that may arise during the course of their professional work.

" A university program with top-quality teaching resources that will raise your professional horizons"

General Objectives

- Generate specialized knowledge on Artificial Intelligence
- Identify which type of learning (supervised or unsupervised) is most appropriate for a given problem

You will update your knowledge in Natural Language Processing with agility thanks to the innovative multimedia content offered by TECH"

Specific Objectives

- Generate specialized knowledge on the application and advanced techniques of intelligent systems and their practical application
- Formalize and design automatic reasoning systems
- Implement and apply machine learning techniques in prediction problems
- Identify the characteristics of an Intelligent System/Agent

03

Course Management

In order to maintain intact the educational quality standards that distinguish its university degrees, TECH has carried out a rigorous selection process to choose the teaching staff for this Postgraduate Certificate. These professionals stand out for their extensive knowledge in Artificial Intelligence and Advanced Systems Computing. So much so that they have a long career, where they have been part of prestigious companies in the technology field. Thanks to this, students will have access to top-quality educational resources that are fully valid in the labor market.

> *During the university program, you will have the invaluable support of a teaching staff made up of experts in Artificial Intelligence and Advanced Systems Computing"*

Management

### Mr. Olalla Bonal, Martín

- Senior *Blockchain* Practice Manager at EY
- *Blockchain* Client Technical Specialist for IBM
- Director of Architecture for Blocknitive
- Non-Relational Distributed Databases from Team Coordinator for wedoIT (IBM Subsidiary)
- Infrastructure Architect at Bankia
- Head of Layout Department at T-Systems
- Department Coordinator for Bing Data España SL

Professors

Dr. Ceballos van Grieken, Ángel
- Researcher specialized in the application of ICTs in education
- Author of the Project for the Creation of Educational Contents for Mobile Devices
- Teacher in postgraduate studies related to ICTs
- Teacher in university studies related to Computer Science
- Doctor in Education from Los Andes University
- Specialist in Educational Informatics, Simón Bolívar University
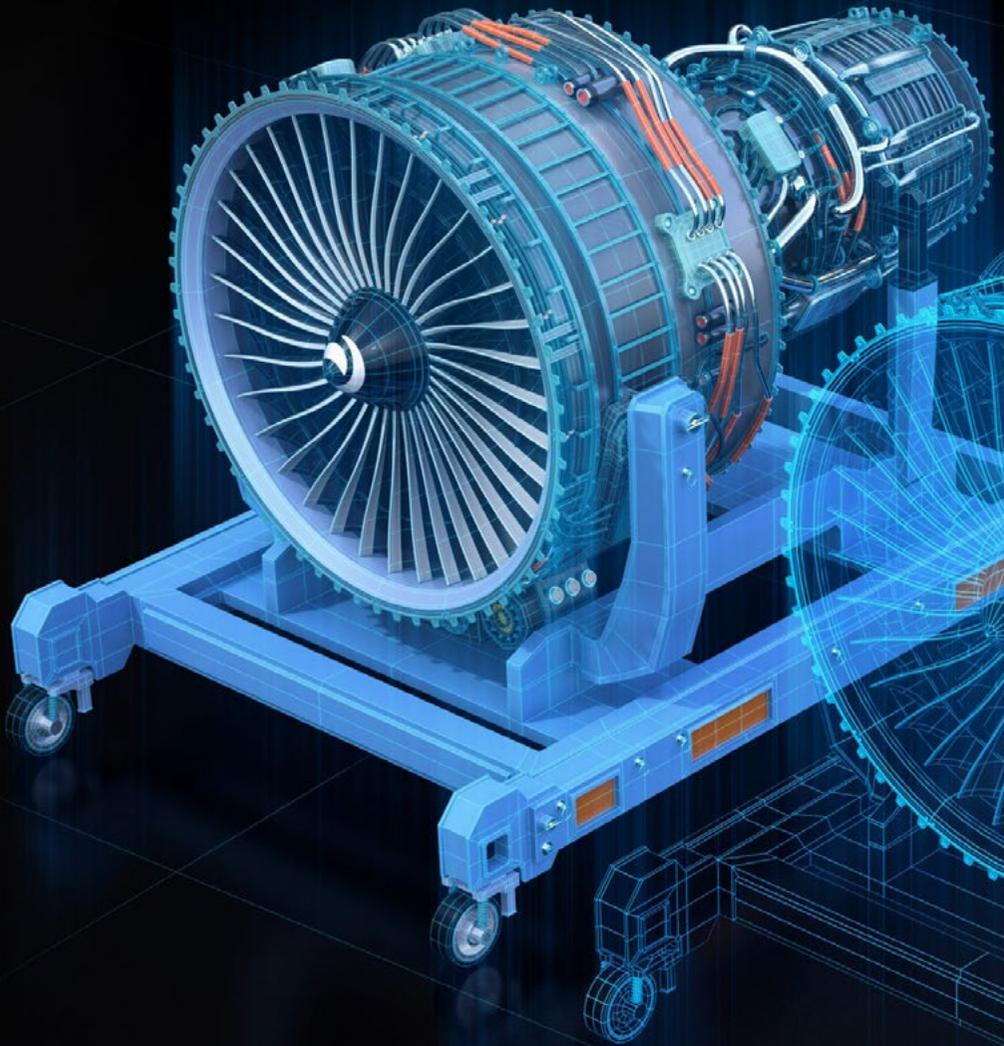
"
Take the opportunity to learn about the latest advances in this field in order to apply it to your daily practice"

04
Structure and Content

This Postgraduate Certificate will provide students with a holistic view of Artificial Intelligence in Computer and Systems Engineering. The program will address the relevance of data, examining aspects such as the Ingestion or Profiling of this information. Likewise, the syllabus will delve into Robotic Process Automation so that graduates can automate repetitive and rule-based tasks within business processes. In line with this, the didactic materials will also focus on Machine Learning, Natural Language Processing and Image Recognition. In this way, students will master the life cycle of Artificial Intelligence models.

A syllabus developed by experts and teaching content of the highest level are the key to a successful professional career"

Module 1. Artificial Intelligence in Systems Engineering and Computer Science

1.1. Artificial Intelligence
    1.1.1. Intelligence in Systems Engineering
    1.1.2. Artificial Intelligence
    1.1.3. Artificial Intelligence. Advanced Concepts
1.2. Importance of Data
    1.2.1. Data Ingestion
    1.2.2. Analysis and Profiling
    1.2.3. Data Refinement
1.3. Machine Learning in Artificial Intelligence
    1.3.1. Machine Learning
    1.3.2. Supervised Learning
    1.3.3. Unsupervised Learning
1.4. Machine Learning in Artificial Intelligence
    1.4.1. Deep Learning vs. Machine Learning
    1.4.2. Neural Networks
1.5. Robotic Process Automation (RPA) in Artificial Intelligence
    1.5.1. RPA in Artificial Intelligence
    1.5.2. Process Automation. Good Practices
    1.5.3. Process Automation. Continuing Improvement
1.6. Natural Language Processing (NLP) in Artificial Intelligence
    1.6.1. NLP in Artificial Intelligence
    1.6.2. NPL Applied to Software
    1.6.3. NLP. Application
1.7. Image Recognition in Artificial Intelligence
    1.7.1. Models
    1.7.2. Algorithms
    1.7.3. Applications
1.8. Neural Networks in Artificial Intelligence
    1.8.1. Models
    1.8.2. Learning Algorithms
    1.8.3. Applications of Neural Networks in Artificial Intelligence

Thanks to the most efficient teaching methodology, you will be able to acquire new knowledge in a precise way and in only 150 hours"

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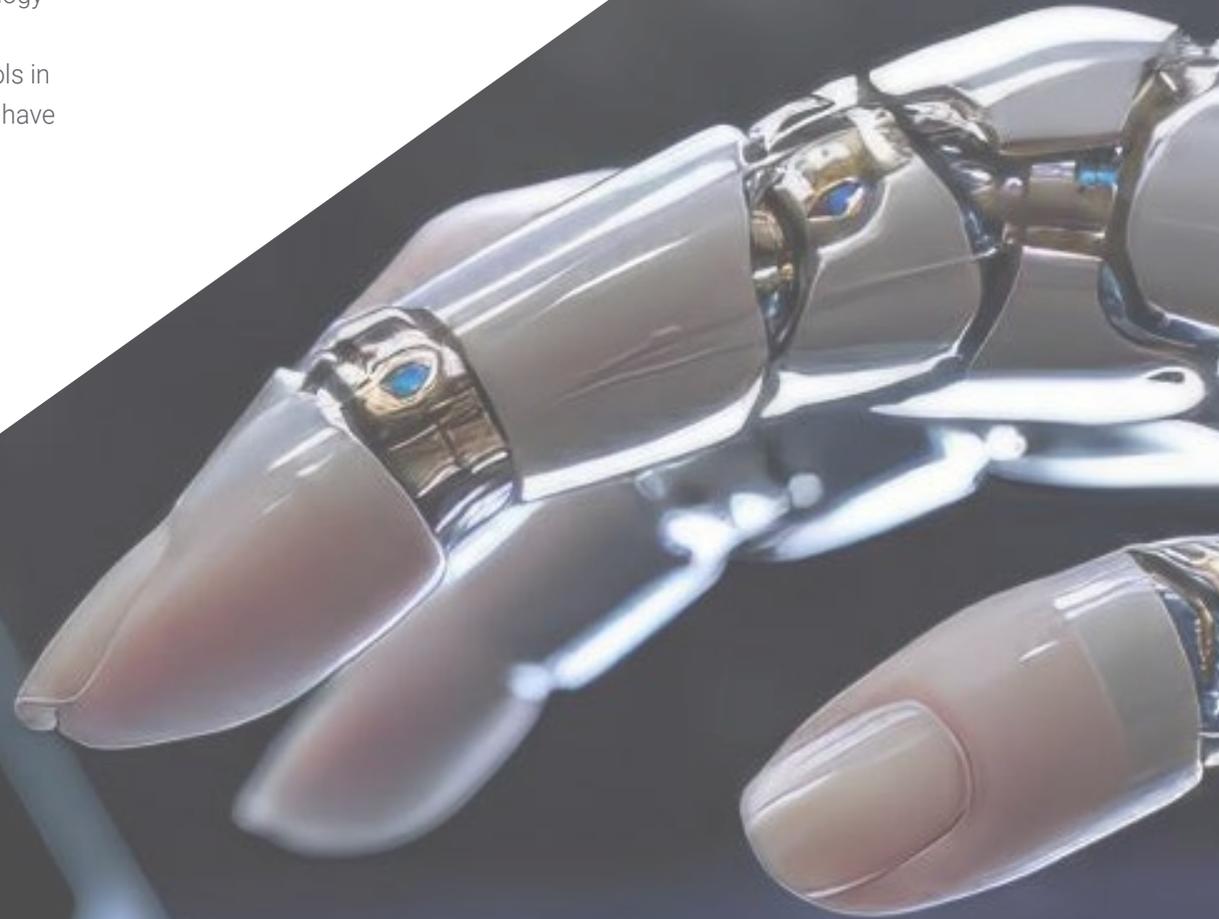
" *Discover Relearning, a system that abandons conventional linear learning, to take you through cyclical teaching systems: a way of learning that has proven to be extremely effective, especially in subjects that require memorization"*

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.

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%

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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.

Certificate

The Postgraduate Certificate in Artificial Intelligence in Systems Engineering and Computer Science 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 Artificial Intelligence in Systems Engineering and Computer Science** 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 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 in Systems Engineering and Computer Science**

Official Nº of Hours: **150 h.**

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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 in Systems Engineering
and Computer Science

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 diploma issued with an apostille, TECH EDUCATION will make the necessary arrangements to obtain it, at an additional cost.

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- » Exams: **online**

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