

Postgraduate Certificate Industry 4.0 Automation Systems



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- » Modality: online
- » Duration: 6 weeks
- » Certificate: TECH Global University
- » Credits: 6 ECTS
- » Dedication: 16h/week
- » Schedule: at your own pace
- » Exams: online

Website: www.techtute.com/in/artificial-intelligence/postgraduate-certificate/industry-4-0-automation-systems

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01

Introduction

One of the fundamental foundations of Industry 4.0 is Automation Systems, as they integrate digital technologies to optimize business processes. This is possible thanks to Artificial Intelligence tools, including augmented reality and data analysis. In this way, professionals use these tools to improve aspects such as efficiency, flexibility or quality during manufacturing processes. An example of this is industrial robots, which transport objects from one workstation to another without human intervention. In view of its multiple benefits, TECH is launching a 100% online university program that will focus on the Automation of Processes in the industrial field.





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Thanks to this Relearning based Postgraduate Certificate, you will be equipped with the most innovative techniques to overcome challenges related to Automation Systems”

Thanks to Industry 4.0 Automation Systems, society is progressing to improve the quality of life of its citizens. For example, these processes contribute to both the reduction of energy and resource consumption by optimizing the use of raw materials. In tune with this, they serve to reduce waste and minimize the carbon footprint during manufacturing activities. Therefore, technological tools promote environmental sustainability through greener and more sustainable practices. However, to enjoy all their benefits, professionals need to frequently delve into the new technological advances that emerge in this area.

For this reason, TECH presents a Postgraduate Certificate in Industry 4.0 Automation Systems. In this way, experts will incorporate the most innovative mechanisms to optimize work environments into their usual procedures. To achieve this, the academic itinerary will delve into the specificities of mechanization, taking into account aspects such as architecture and its various components. The syllabus will also examine the use of PCL Systems, which will enable graduates to control and automate processes such as the separation of substances or the dosing of materials. At the same time, the program will provide students with state-of-the-art techniques for industrial connectivity, including standardized fieldbuses.

It should be noted that the methodology of this program reinforces its innovative character. TECH will offer students a 100% online educational environment, where the only thing required is an electronic device with Internet access to access the Virtual Campus. In addition, the university program will employ the revolutionary 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 the Postgraduate Certificate highly accessible.

This **Postgraduate Certificate in Industry 4.0 Automation Systems** 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 Industry 4.0 Automation Systems
- The graphic, schematic, and practical contents with which they are created, provide 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 delve into Computer Integrated Automation CIM at the world's best digital university according to Forbes"

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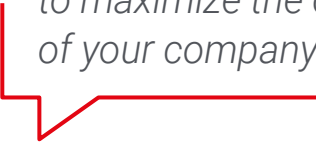
Do you want to become a true Automation Systems expert? With this program, you will accomplish your goal in only 6 weeks"

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.

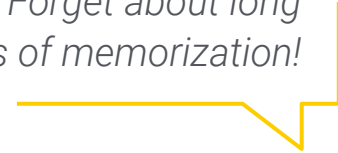
The multimedia content, developed with the latest educational technology, will provide the professional with situated and contextual learning, i.e., a simulated environment that will provide immersive education programmed to learn in real situations.

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

You will enrich your projects with the most advanced strategies of proactive and predictive maintenance, to maximize the operational efficiency of your company.



With TECH's teaching method you will enjoy a natural and progressive learning process. Forget about long hours of memorization!



02

Objectives

Through this university program, graduates will master the fundamental concepts of Industry 4.0 and will manage enabling technologies such as sensors or actuators. Along the same lines, students will develop practical skills to optimize industrial processes using advanced modeling and simulation techniques. At the same time, professionals will enhance their skills for the programming and configuration of automation systems, using specific languages. In addition, they will implement Lean Manufacturing in organizations to eliminate waste and improve services to maximize value for customers.



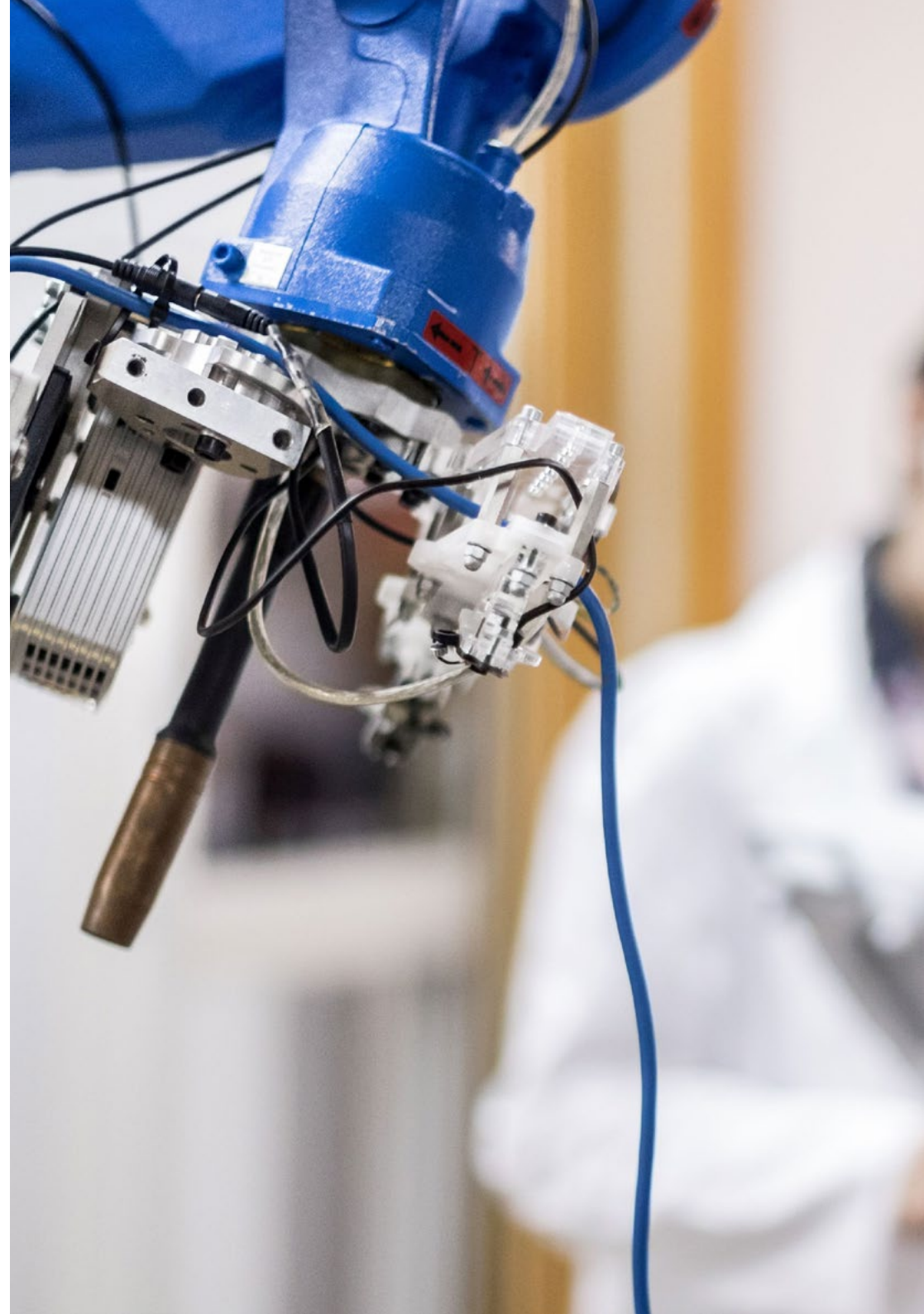
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You will increase your confidence in decision making with the most advanced PLC systems offered by this university program"



General Objectives

- ◆ Conduct a comprehensive analysis of the profound transformation and radical paradigm shift being experienced in the current global digitalization process
- ◆ Provide in-depth knowledge and the necessary technological tools to face and lead the technological leap and the challenges currently present in companies
- ◆ Master the digitalization procedures of companies and the automation of their processes to create new fields of wealth in areas such as creativity, innovation and technological efficiency
- ◆ Leading Digital Change





Specific Objectives

- Better understanding of the main automation and control systems, their connectivity, the types of industrial communications and the type of data they exchange
- Convert the production process facilities into a true Smart Factory
- Be able to deal with large amounts of data, define their analysis and derive value from them
- Define continuous monitoring, predictive and prescriptive maintenance models



You will study using state-of-the-art resources such as interactive summaries, so that you can assimilate all the knowledge in Standardized Fieldbuses in an enjoyable way"

03

Course Management

To maintain intact the excellent level that characterizes each of its university programs, TECH has a prestigious teaching team for both the design and delivery of this Postgraduate Certificate. The professionals that make up the team are highly specialized in Industry 4.0 Automation Systems, a technological field in which they have accumulated a long career. In this way, these specialists have proposed innovative solutions to companies of international prestige. Therefore, the students have the guarantees they demand to update their knowledge and enjoy an educational experience that will catapult them to success in the workplace.





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The teachers of this program will provide you with the latest trends in Lean Manufacturing, so that you can optimize all aspects of the production process.”

Management



Dr. Segovia Escobar, Pablo

- ♦ Chief Executive of the Defense Sector in the Company TecnoBit of the Oesía Group
- ♦ Corporate Project Director Indra
- ♦ Master's Degree in Companies Administration and Management by the National University of Distance Education
- ♦ Postgraduate in Strategic Management Function
- ♦ Member of: Spanish Association of People with High Intellectual Quotient



Dr. Diezma López, Pedro

- ♦ Chief Innovation Officer and CEO of Zerintia Technologies
- ♦ Founder of the technology company Acuilae
- ♦ Member of the Kebala Group for business incubation and promotion
- ♦ Consultant for technology companies such as Endesa, Airbus or Telefónica
- ♦ Wearable "Best Initiative" Award in eHealth 2017 and "Best Technological "Solution" 2018 for occupational safety



Professors

Mr. Castellano Nieto, Francisco

- ◆ Head of Indra Company Maintenance Area
- ◆ Consultant for Siemens AG, Allen-Bradley at Rockwell Automation and other companies
- ◆ Industrial Electronic Technical Engineer by the Universidad Pontificia Comillas

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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

Through a very complete module, this university program will allow students to master the most important enabling technologies in the Automation Systems of the Fourth Industrial Revolution. The academic itinerary will delve into issues ranging from automation processes to Programmable Logic Controllers. In this way, graduates will use electronic devices to control and automate processes such as product manufacturing. In addition, the syllabus will offer the keys to get the most out of the Feedback Control Systems. This will enable professionals to maintain the stability of the devices by automatically compensating for disturbances.



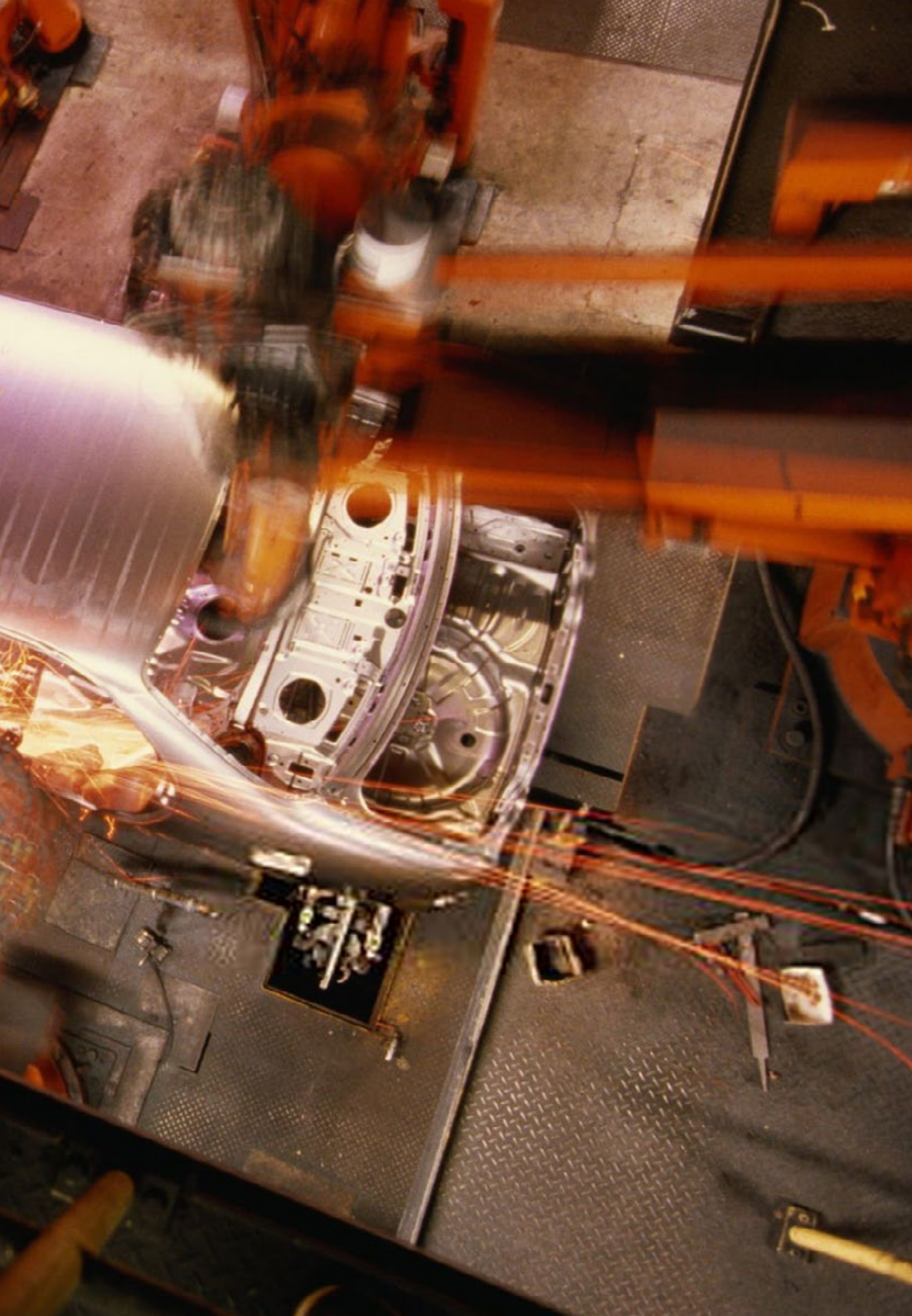
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You will reach your full potential in the Industry 4.0 Automation Systems thanks to the most complete and up-to-date teaching materials on the academic market"

Module 1. Industry 4.0. Automation Systems

- 1.1. Industrial Automation
 - 1.1.1. Automation
 - 1.1.2. Architecture and Components
 - 1.1.3. *Safety*
- 1.2. Industrial Robotics
 - 1.2.1. Fundamentals of Industrial Robotics
 - 1.2.2. Models and Impact on Industrial Processes
- 1.3. PLC Systems and Industrial Control
 - 1.3.1. PLC Evolution and Status
 - 1.3.2. Evolution of Programming Languages
 - 1.3.3. Computer Integrated Automation CIM
- 1.4. Sensors and Actuators
 - 1.4.1. Classification of Transducers
 - 1.4.2. Types of Sensors
 - 1.4.3. Standardization of Signals
- 1.5. Monitor and Manage
 - 1.5.1. Types of Actuators
 - 1.5.2. Feedback Control Systems
- 1.6. Industrial Connectivity
 - 1.6.1. Standardized Fieldbuses
 - 1.6.2. Connectivity
- 1.7. Proactive / Predictive Maintenance
 - 1.7.1. Predictive Maintenance
 - 1.7.2. Fault Identification and Analysis
 - 1.7.3. Proactive Actions Based on Predictive Maintenance





- 1.8. Continuous Monitoring and Prescriptive Maintenance
 - 1.8.1. Prescriptive Maintenance Concept in Industrial Environments
 - 1.8.2. Selection and Exploitation of Data for Self-Diagnostics
- 1.9. *Lean Manufacturing*
 - 1.9.1. *Lean Manufacturing*
 - 1.9.2. Benefits of Lean Implementation in Industrial Processes
 - 1.10. Industrialized Processes in Industry 4.0. Use Case
- 1.10.1. Project definition
 - 1.10.2. Technological Selection
 - 1.10.3. Connectivity
 - 1.10.4. Data Exploitation

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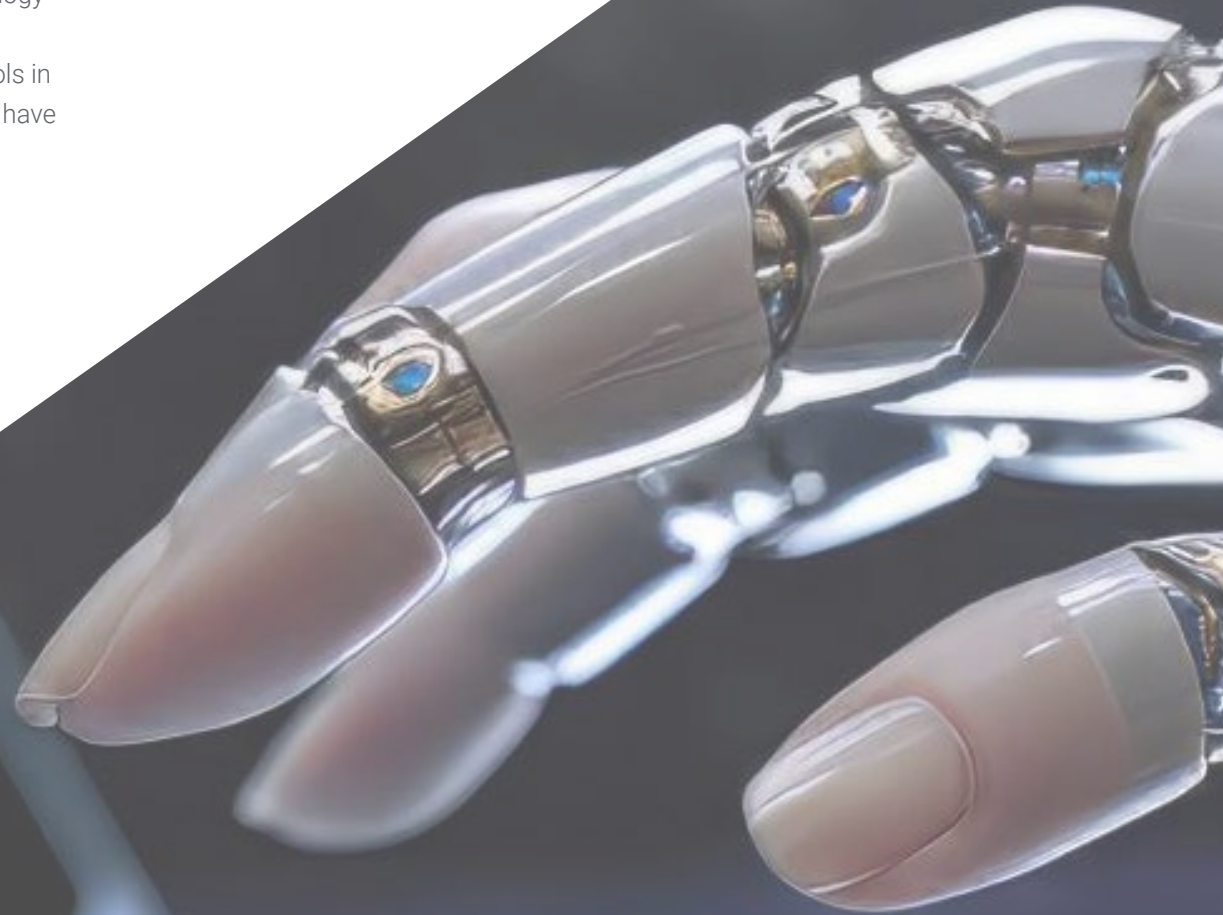
This is a flexible university qualification that is compatible with the most demanding daily responsibilities” What are you waiting for to enroll?”

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.

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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.



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.





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 Industry 4.0 Automation Systems guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Certificate issued by TECH Global University.





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

This program will allow you to obtain your **Postgraduate Certificate in Industry 4.0 Automation Systems** 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** title 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 Industry 4.0 Automation Systems**

ECTS: **6**

Official N° of Hours: **150 h.**



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



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