Postgraduate Diploma
Automation and Artificial Intelligence

tech technological university

Postgraduate Diploma
Automation and Artificial Intelligence

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

Website: **www.techtitute.com/pk/engineering/postgraduate-diploma/automation-and-artificial-intelligence**

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01
Introduction

Artificial Intelligence and Automation have meant a relevant change in all professional fields and daily life, when they still have a lot of future to advance and many new discoveries. This is the reason why many companies demand professionals with specialized knowledge in this area, and why TECH has designed this program. Throughout the content, the following topics are covered Industrial Automation, robotics, Big Data and AI. All this, through a 100% online mode that gives total freedom of organization.

Become an expert in Automation and Artificial Intelligence"

Automation and Artificial Intelligence are two of the most important technological advances that are generating more benefits for the industry and many other sectors, when they still have a long way to go, showing a promising future ahead. This field represents a great opportunity for those professionals who decide to specialize and who are in great demand in the labor market.

For this reason, TECH has created a Postgraduate Diploma in Automation and Artificial Intelligence with which to provide students with the skills and knowledge necessary to be able to face a professional future in this sector, with total guarantee of success. And this, with an syllabus that addresses aspects such as the future of robotics and AI, Industrial Automation, Lean Manufacturing or Big Data, among others, in depth.

All this, through a 100% online mode that gives students total freedom to organize their studies and schedules as best suits them. All this, with the most complete teaching materials, information based on the most up-to-date sources and latest teaching technologies.

This **Postgraduate Diploma in Automation and Artificial Intelligence** contains the most complete and up-to-date educational program on the market. Its most notable features are:

- Development of practical cases presented by experts in Automation and Artificial Intelligence
- The graphic, schematic and practical contents of the book provide technical and practical information on those 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

Enhance your professional profile as an engineer and stand out in one of the sectors with the greatest potential"

Enjoy video summaries, in-depth videos or specialized readings from day one and without any limitations.

"*Completing this program will position you as an outstanding expert in Artificial Intelligence and Big Data*"

This program will equip you with the skills and competencies you need to achieve a successful position in the Engineering field.

The program's teaching staff includes professionals from the sector who contribute their work experience to this program, in addition to 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.

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Objectives

The objective of this Postgraduate Diploma in Automation and Artificial Intelligence is to provide students with the necessary skills and knowledge to be able to carry out their work in this field of engineering with the highest quality and efficiency in their work. All this, through the most complete and dynamic content in the academic market.

Reach your full potential as an engineer, acquiring specific knowledge of Automation and Artificial Intelligence"

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 the Digital Change

Specific Objectives

Module 1. Industry 4.0 Automation Systems

- 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

Module 2. *Big Data* and Artificial Intelligence

- Delve into the knowledge of the fundamental principles of artificial intelligence
- Master the techniques and tools of this technology (*machine learning*/deep learning)
- Obtain a practical knowledge of one of the most widespread applications such as Chatbots and virtual assistants
- Acquire knowledge of the different transversal applications that this technology has in all fields

Module 3. Robotics, Drones and *Augmented Workers*

- Entering the world of robotics and automation
- Choose a robotic platform, prototype and know about simulators and robot operating system (ROS) in detail
- Delve into in the applications of artificial intelligence to robotics oriented to predict behaviors and optimize processes
- Study robotics concepts and tools, as well as use cases, real examples and integration with other systems and demonstration
- Analyze the most intelligent robots that will accompany us in the coming years and how humanoid machines will be trained to perform in complex and challenging environments

Thanks to TECH, you will be able to reach your most demanding goals in a few months and with a total improvement of your competences in Data Mining and Data Warehousing"

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Course Management

The management and teaching staff of this Postgraduate Diploma in Automation and Artificial Intelligence are outstanding professionals who are part of the team of experts in TECH Engineering. They have poured their experience and their most specialized knowledge in the field to create a curriculum that meets the highest expectations.

A unique and specialized teaching team that will help you to pass your studies with total efficiency and with the best assimilation of concepts in Automation and AI"

Management

Mr. 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
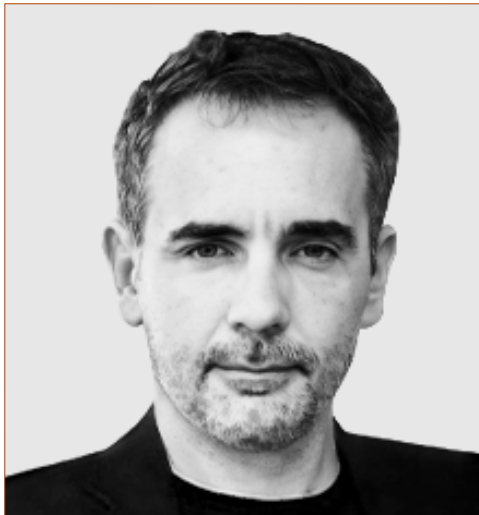
Mr. Diezma López, Pedro

- 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

Ms. Sánchez López, Cristina

- CEO and founder of Acuilae
- Artificial Intelligence consultant at ANHELA IT
- Creator of Ethyka Software for Computer System Security
- (Software Engineer) for the Accenture Group in large clients such as Bank of Santander, BBVA, Endesa or Barclays Bank.
- Master's Degree in Data Science at KSchool
- Degree in Statistics from the Complutense University Madrid

Mr. Montes, Armando

- Expert in drones, robots , electronics and 3D printers
- EMERTECH collaborator developing technology products such as Smart Vest
- Ordering and Customer Fulfillment Specialist for GE Renewable Energy
- CEO of the School of Superheroes Foundation related to 3D Printing and Smart Robot Implementation and the Implementation of Smart Robots

Mr. Castellano Nieto, Francisco

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

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Structure and Content

The structure and all the teaching resources of this syllabus have been designed by the renowned professionals that make up TECH's team of experts in the area of Automation and Artificial Intelligence. They have designed complete, up to date and precise contents, based on the most efficient pedagogical methodology, Relearning, which guarantees an optimal assimilation of the contents by the students.

Acquire new knowledge in a natural, fast and progressive way, thanks to the most efficient pedagogical methodology in the academic market, TECH's Relearning"

Module 1. Industry 4.0 Automation Systems

1.1. Industrial Automation
- 1.1.1 Automization
- 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 from 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 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

Module 2. *Big Data* and Artificial Intelligence

2.1. Fundamental Principles of Big Data
- 2.1.1 Big Data
- 2.1.2 Tools to Work With Big Data

2.2. Data Mining and Storage
- 2.2.1 Data Mining Cleaning and Standardization
- 2.2.2 Information Extraction, Machine Translation, Sentiment Analysis, etc.
- 2.2.3 Types of Data Storage

2.3. Data Intake Applications
- 2.3.1 Principles of Data intake
- 2.3.2 Data Ingestion Technologies to Serve Business Needs

2.4. Data Visualization
- 2.4.1 The Importance of Data Visualization
- 2.4.2 Tools to Carry It Out Tableau, D3, matplotlib (Python), Shiny®

2.5. Machine Learning
- 2.5.1 Understanding Machine Learning
- 2.5.2 Supervised and Unsupervised Learning
- 2.5.3 Types of Algorithms

2.6. Neural Networks (Deep Learning)
- 2.6.1 Neural Network: Parts and Operation
- 2.6.2 Types of Networks CNN, RNN
- 2.6.3 Applications of Neural Networks; Image Recognition and Natural Language Interpretation
- 2.6.4 Generative Text Networks: LSTM

Module 3. Robotics, Drones and *Augmented Workers*

Enroll now and stand out in one of the sectors with the greatest potential, in a fast and comfortable way, thanks to TECH"

Methodology

This program offers students a different way of learning. Our methodology follows a cyclical learning process: 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.
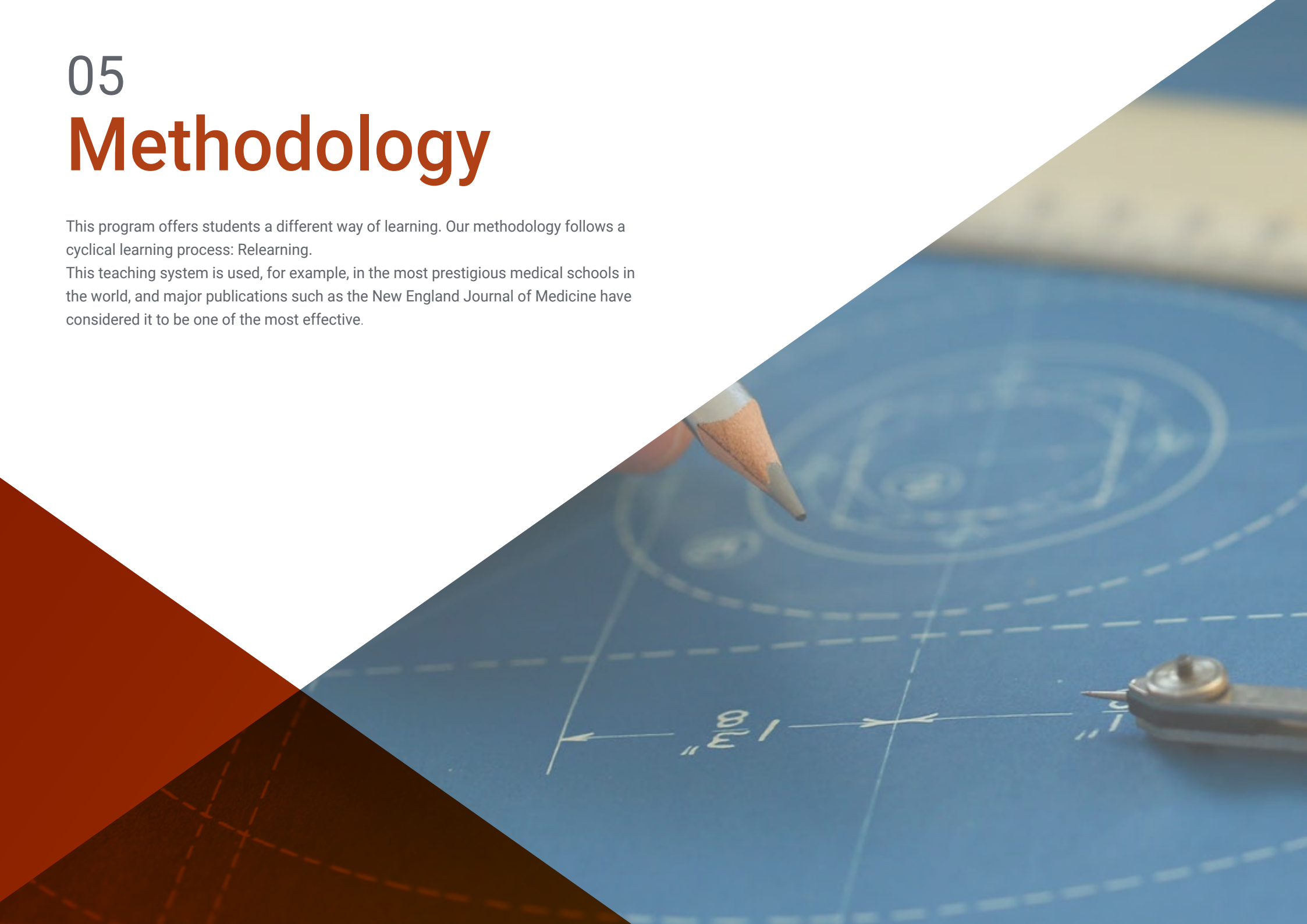
Discover Relearning, a system that abandons conventional linear learning, to take you through cyclical teaching systems: a way of learning that has proven to be extremely effective, especially in subjects that require memorization"

Case Study to contextualize all content

Our program offers a revolutionary method of skills and knowledge development. Our goal is to strengthen skills in a changing, competitive, and highly demanding environment.

" *At TECH, you will experience a way of learning 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 prepare 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 prepared 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 education, 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 adapted in 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.

Practicing Skills and Abilities

They will carry out activities to develop specific competencies and skills in each thematic field. 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 assess and re-assess 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

This Postgraduate Diploma in Automation and Artificial Intelligence guarantees, in addition to the most rigorous and up-to-date education, access to a Postgraduate Diploma 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 Diploma in Automation and Artificial Intelligence** contains the most complete and up-to-date educational program on the market.

After the student has passed the assessments, they will receive their corresponding **Postgraduate Diploma**, issued by **TECH Technological University** via tracked delivery*.

The certificate issued by **TECH Technological University** will reflect the qualification obtained in the Postgraduate Diploma, and meets the requirements commonly demanded by labor exchanges, competitive examinations, and professional career evaluation committees.

Title: **Postgraduate Diploma in Automation and Artificial Intelligence**

Official Nº of Hours: **450 h.**

tech technological university

Awards the followi ng
CERTIFICATE
to

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

POSTGRADUATE DIPLOMA

in

Automation and Artificial Intelligence

This is a qualification awarded by this University, equivalent to 450 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

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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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