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/in/information-technology/postgraduate-diploma/postgraduate-diploma-automation-artificial-intelligence**

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01
Introduction

Nowadays, Automation and Artificial Intelligence tools have succeeded in minimizing human activity in industrial processes, relieving them from performing tasks that compromise their safety or require a high level of monotony during working hours. Through their implementation, moreover, companies obtain higher productivity, which is why IT specialists in the optimization of these technologies are increasingly required by companies. For this reason, TECH has designed this program, through which the student will identify the different industrial applications of Deep Learning or manage the keys to the incorporation of robotics in production processes. All of this, 100% online and without having to travel to a study center.

Through this Postgraduate Diploma, you will adopt the most updated protocols to implement robotics tools in order to optimize the production processes of a company"

In the past, workers in different sectors of activity have had to undergo complex and monotonous tasks involving long and arduous working hours. However, the emergence of cutting-edge Automation mechanisms and Artificial Intelligence devices has allowed not only to speed up the work of these professionals, but also to minimize the companies' production costs. Against this backdrop, IT specialists with a high level of expertise in the implementation, management and supervision of these technological systems are in great demand in a work environment that is immersed in constant digitization.

For this reason, TECH has created this program, with which the student will obtain the most relevant and up-to-date knowledge regarding Automation and Artificial Intelligence, in this way boosting their growth in this sector. Throughout this educational period, you will identify the best strategies to undertake predictive maintenance of automation systems or establish the potential of virtual assistants in the performance of certain tasks. In the same way, you will learn how to detect opportunities to implement RaaS and robotics services in companies.

Since this Postgraduate Diploma is developed through a 100% online methodology, students will be able to combine their excellent learning with their personal and professional duties. In addition, this program is designed and taught by high caliber specialists active in the area of Automation and Artificial Intelligence. Therefore, the knowledge adopted by the student will be fully up-to-date.

This **Postgraduate Diploma in Automation and 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 technological IA solutions

◆ 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

Learn, with this program, how to optimally detect opportunities to implement RaaS and robotics services in the different areas of a company"

"This Postgraduate Diploma has a 100% online methodology that will allow you to learn without having to depend on uncomfortable pre-established schedules"

Enjoy a wide range of different textual and multimedia formats to choose the ones that best suit your study needs.

Thanks to this program, you will adopt the most sophisticated strategies to undertake predictive maintenance of the different Automation systems.

The program's teaching staff includes professionals from the sector who bring their work experience to this program, in addition to renowned specialists from prestigious reference societies and universities.

Its multimedia content, developed with the latest educational technology, will allow the professional a situated and contextual learning, that is, a simulated environment that will provide an immersive training programmed to train 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 educational year. For this purpose, the students will be assisted by an innovative interactive video system created by renowned and experienced experts.
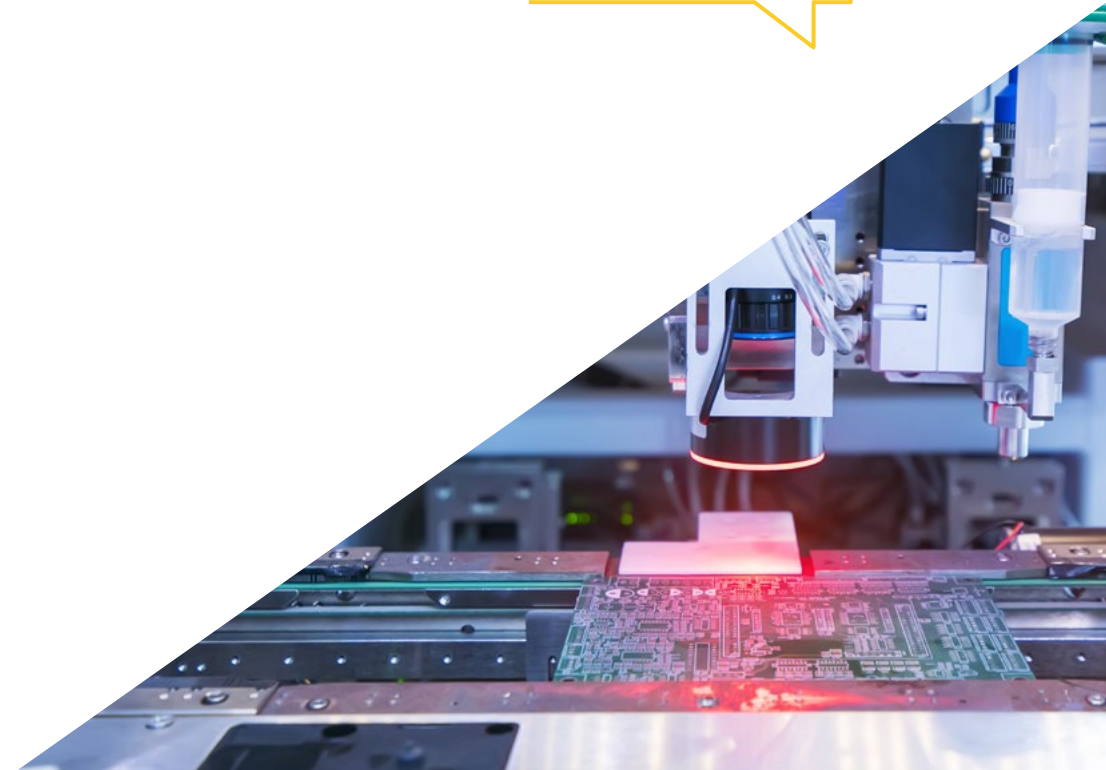
02
Objectives

TECH has designed this Postgraduate Diploma with the intention of favoring the delve of the student in the most relevant and avant-garde aspects of Automation and Artificial Intelligence. In this way, you will analyze the particularities of the different systems aimed at reducing human intervention in industrial processes or delve into the current applications of Chatbots. In addition, their learning will be ensured by the achievement of the following general and specific objectives.

Take this Postgraduate Diploma and multiply your opportunities to grow professionally in a sector in constant growth"

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
- Mastering 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

Learn, through this program, the latest update on the use of AI tools in business processes"

Specific Objectives

Module 1. Industry 4.0 Automation Systems

- Conduct an exhaustive analysis of the practical application that emerging technologies are having in the different economic sectors and in the value chain of their main industries
- In-depth knowledge of the primary and secondary economic sectors, as well as the technological impact they are experiencing
- Find out how technologies are revolutionizing the agricultural, livestock, industrial, energy and construction sectors

Module 2. Big Data and Artificial Intelligence

- Deepen 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

- 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

Course Management

In order to provide a top-quality educational program for its students, this program has a team of teachers composed of active professionals in the field of Artificial Intelligence and Automation. In addition, the teaching resources that you will enjoy during the duration of this Postgraduate Diploma are specifically designed by these specialists. Therefore, the contents that the computer scientist will receive will be in tune with the recent advances in this sector.

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Those responsible for directing and teaching this program have extensive experience in the field of Automation and Artificial Intelligence in order to provide you with the teaching resources that are most applicable to your work"

Management

Mr. Segovia Escobar, Pablo

- Chief Executive of the Defense Sector in the Company Tecnobit of the Oesía Group
- Project Manager at Indra
- Master's Degree in Business Administration and Management from the National University of Distance Education
- Postgraduate in Strategic Management Function
- Member of the 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 the incubation and promotion of businesses
- Consultant for technology companies such as Endesa, Airbus or Phone
- 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
- Developer of Ethyka Software for Computer Systems Security
- Software Engineer for the Accenture Group, serving clients such as Banco Santander, BBVA and Endesa
- Master in Data Science at KSchool
- Degree in Statistics from the Complutense University Madrid

Mr. Castellano Nieto, Francisco

- Head of the Maintenance Area of Indra Company
- Consulting partner for Siemens, Allen-Bradley, Omron and other companies
- Industrial Electronic Engineer from from Comillas Pontifical University

04
Structure and Content

The syllabus of this program is made up of 3 modules with which the student will delve into the field of Automation and Artificial Intelligence to learn its intricacies. All of the teaching materials you will have at your disposal throughout this program are available in a wide range of textual and interactive formats. Due to this and through a 100% online methodology, the computer scientist will obtain a resolute and achievable teaching with only a device with Internet connection.
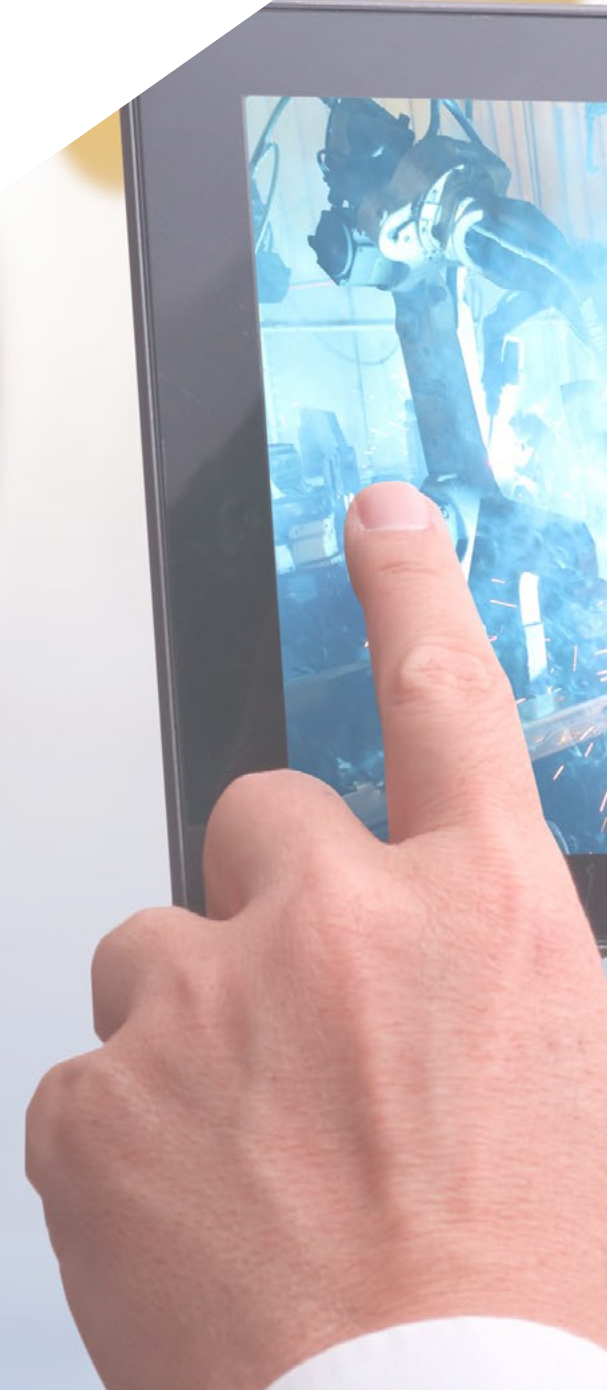
This plan, designed by the best experts in Automation and AI, will provide you with the most up-to-date teaching content in these fields"

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 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 Warehousing
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

2.7. Natural Language Recognition
2.7.1. PNL (Processing Natural Language)
2.7.2. Advanced PLN Techniques: Word2vec, Doc2vec

Module 3. Robotics, Drones and *Augmented Workers*

Enroll in this Postgraduate Diploma and get an effective and decisive teaching through teaching formats such as the self-assessment test or the explanatory video"

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.

"
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%

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 Diploma in Automation and Artificial Intelligence guarantees students, 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 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 following
CERTIFICATE
to
Mr./Ms. _____, with identification number _____.
For having passed and accredited the following program

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

Tere Guevara Navarro
Dean

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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