# Postgraduate Certificate
## Intelligent Agents and Artificial Intelligence

**tech** technological university

# tech technological university

## Postgraduate Certificate
Intelligent Agents and
Artificial Intelligence

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

Website: **www.techtitute.com/us/information-technology/postgraduate-certificate/intelligent-agents-artificial-intelligence**

# Index

# 01
# Introduction

Understanding intelligence, the brain or the soul, and reproducing it has been a constant in the history of research. From the beginning of the 20th century, Turing and the scientists gathered at Dartmouth laid the foundations of what we know today as Artificial Intelligence. A path that has undergone significant advances in recent years, with this technology finding great application in the area of health, commerce or financial services. This university program provides engineering professionals with the most up-to-date knowledge in AI so that they can achieve their goal of progressing in a sector with a wide range of job opportunities. All this with an online teaching with multimedia content according to the current academic times.
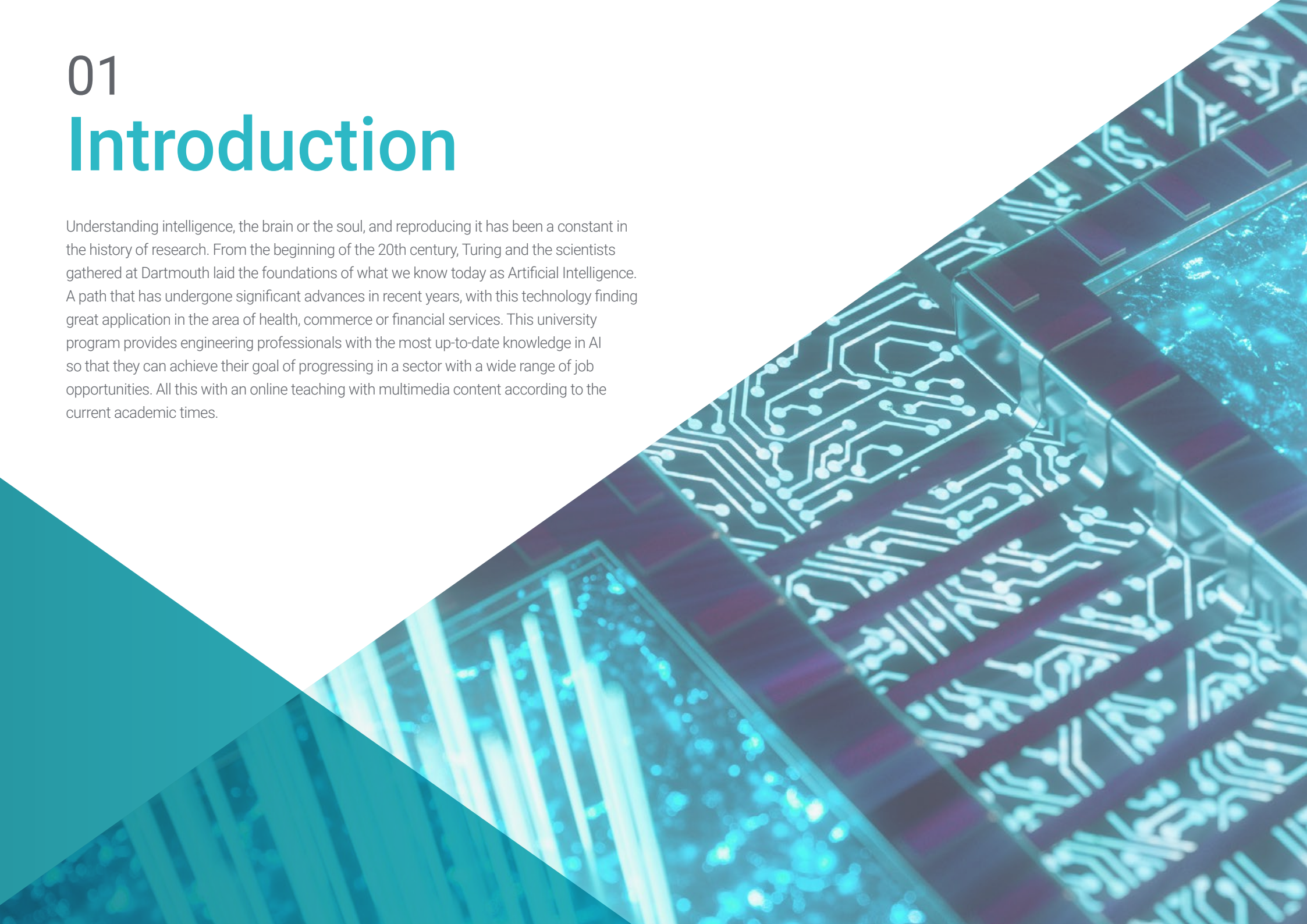
*A university program that will allow you to design a robotic agent controlled by Artificial Intelligence"*

Thirty years ago Artificial Intelligence was reserved for science fiction, however, today it is the present and more and more different economic sectors are benefiting from its technological advances. A progress that also contributes to society. All this would not be possible without the work of professional engineers who have managed to create systems capable of learning from the environment, finding a solution or adapting to a changing environment.

This Postgraduate Certificate provides students with advanced knowledge in the complex algorithms of AI, essential to understand the mathematical and conceptual basis on which this technology is based. A program that will allow the engineering professional to delve into the logical and mathematical foundations of reasoning and learning that have allowed the development of algorithms for path finding, artificial vision, language processing or robot control.

A program with an advanced theoretical framework, but with an eminently practical approach that will allow students through the use of real cases the direct application of all the learning acquired. This will be possible thanks to the specialized teaching team that delivers this program.

An excellent opportunity for engineering professionals who aspire to improve their professional career with a 100% online program. A flexible teaching method that will allow you to take this program while balancing your professional and/or personal responsibilities. All this, in addition to multimedia content that you can access from the first day whenever and wherever you want. You will only need an electronic device with an Internet connection to enter the online platform and start advancing in a booming sector.

The **Postgraduate Certificate in Intelligent Agents and Artificial Intelligence** contains the most complete and up-to-date program on the market. The most important features include:

- Case studies presented by experts in robotic engineering
- 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 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

*Access a university program that provides you with the most up-to-date multimedia content in AI and Intelligent Agents"*

*An education that will allow you to master the main professional tools for the implementation of the intelligent agent"*

*Master Deep Learning thanks to this Postgraduate Certificate. You are just one click away from improving your professional career. Enroll now.*

*This university program allows you to delve into supervised, unsupervised and automatic learning.*
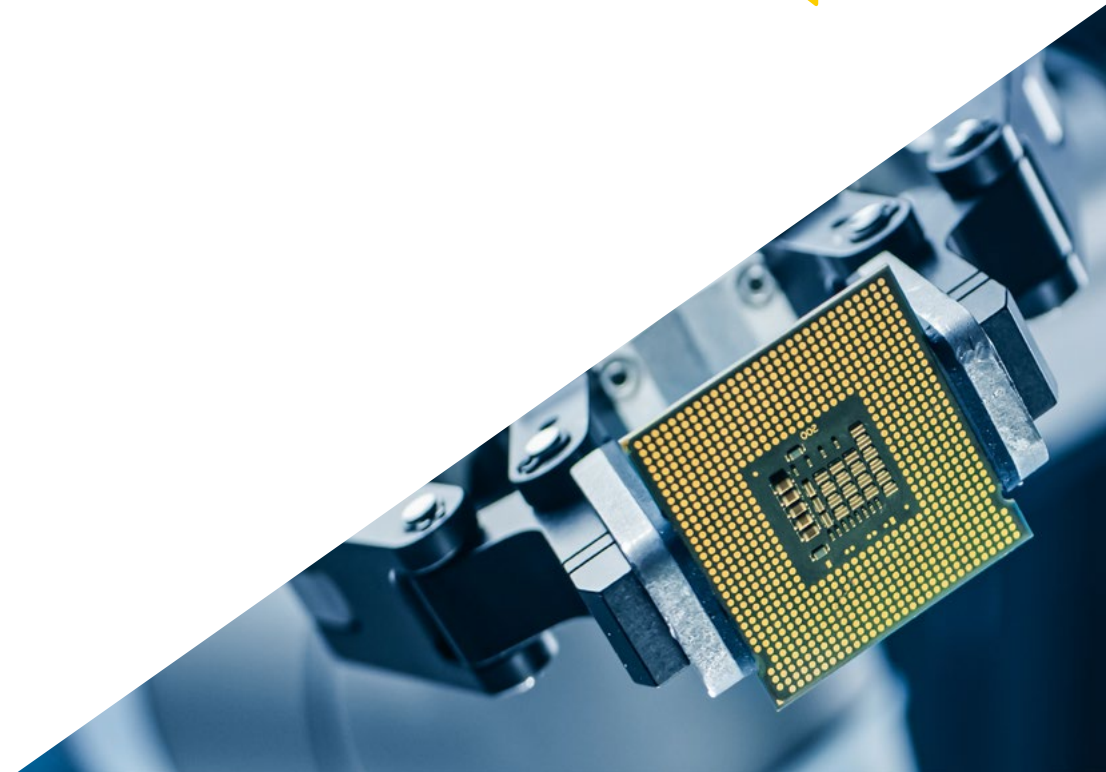
The program's teaching staff includes professionals from the sector who contribute their work experience to this educational program, as well as renowned specialists from leading societies and prestigious universities.

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, students will be assisted by an innovative, interactive video system created by renowned and experienced experts.

## 02
# Objectives

This Postgraduate Certificate has been created with the objective of giving the engineering professional access to the most recent and up-to-date content in the field of Intelligent Agents and Artificial Intelligence. In this way, at the end of the 6 weeks of this program, the student will be able to determine the applications of the most advanced AI techniques on Intelligent Agents, implement specific algorithms and identify those that are found in today's society. All this will be possible thanks to the support you will receive from the expert teaching team in Robotics that makes up this online program.

*A 100% online program with a practical and applicable approach in the robotics industry. Advance your professional career with TECH"*

## General Objectives

- Develop the theoretical and practical foundations necessary to carry out a robot design and modeling project
- Provide the graduates with an exhaustive knowledge of the automation of industrial processes that will allow them to develop their own strategies
- Acquire the professional skills of an expert in automatic control systems in Robotics

*A Postgraduate Certificate that will give you a boost in your professional career in the field of Robotics and Artificial Intelligence. Click and enroll"*
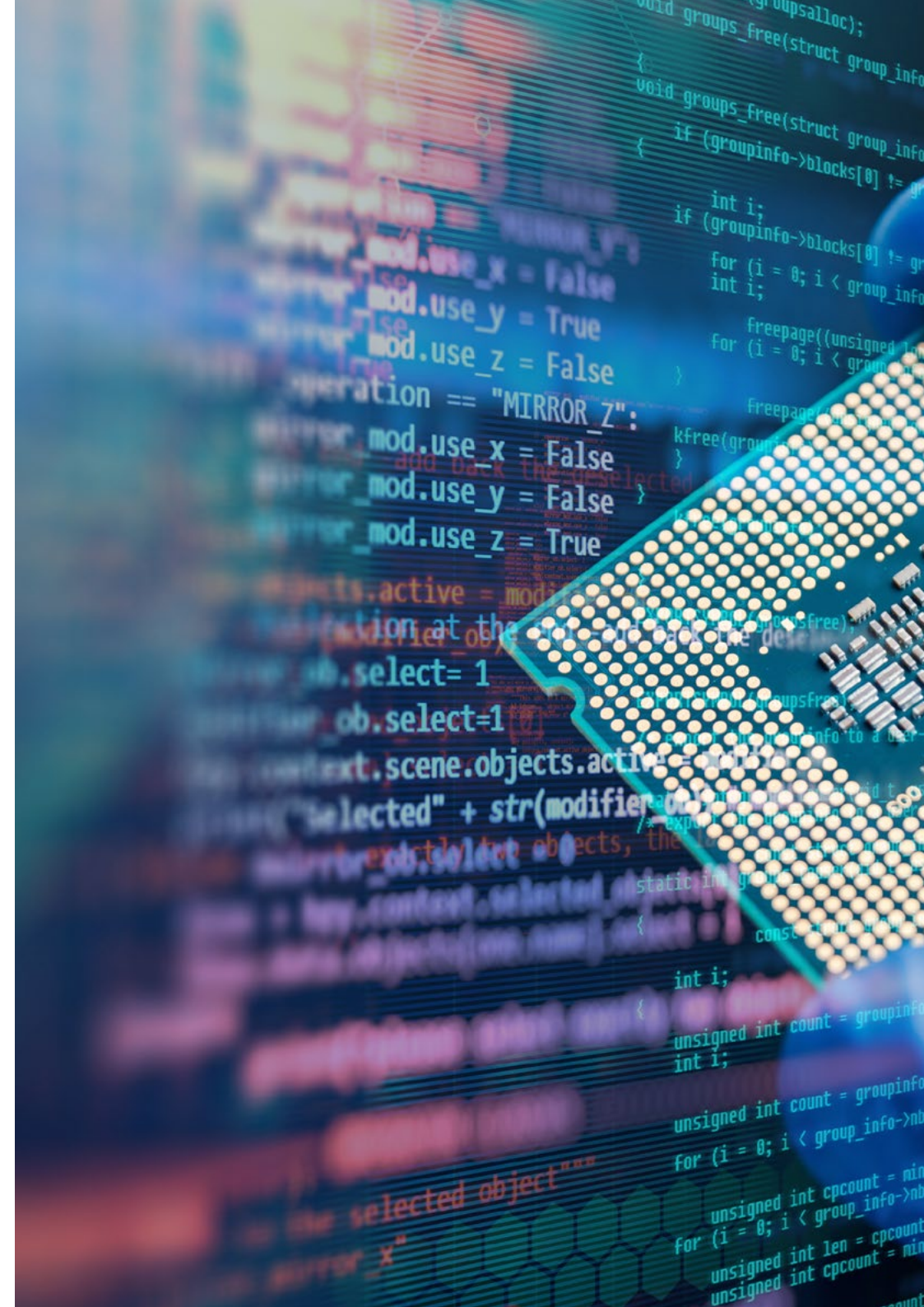
## Specific Objectives

- Analyze the biological inspiration of Artificial Intelligence and intelligent agents
- Assess the need for intelligent algorithms in today's society
- Determine the applications of advanced Artificial Intelligence techniques on Intelligent Agents
- Demonstrate the strong connection between Robotics and Artificial Intelligence
- Establish the needs and challenges presented by Robotics that can be solved with Intelligent Algorithms
- Develop concrete implementations of Artificial Intelligence Algorithms
- Identify Artificial Intelligence algorithms that are established in today's society and their impact on daily life

03

# Course Management

The management and teaching team that make up this program have extensive professional experience in the robotics industry, also possessing experience in projects based on Artificial Intelligence. Thanks to their knowledge in this field and their proximity, they have been chosen by TECH to offer with this education a quality program that allows students to prosper in a booming technology sector with high labor demand.

*A teaching team with experience in Artificial Intelligence projects will show you recent innovations in this area. Enroll now"*

## International Guest Director

Seshu Motamarri is an expert in **automation and robotics** with more than **20 years of experience** in various industries such as **e-commerce, automotive, oil and gas, food and pharmaceutical.** Throughout his career, he has specialized in engineering management and innovation and in the implementation of new technologies, always looking for **scalable and efficient** solutions. He has also made important contributions in the introduction of products and solutions that optimize both safety and productivity in **complex industrial environments.**

He has also held key positions, including **Senior Director of Automation and Robotics at 3M**, where he leads cross-functional teams to develop and implement advanced automation solutions. At Amazon, his role as **Technical Lead** led him to manage projects that significantly improved the global supply chain, such as the "SmartPac" semi-automated bagging system and the robotic **smart picking and stowage** solution. His skills in project management, operational planning and product development have enabled him to generate great results in large-scale projects.

Internationally, he is recognized for his achievements in IT. He has been awarded the prestigious **Amazon Door Desk** Award by Jeff Bezos, and has received the **Excellence in Manufacturing Safety** Award, reflecting his hands-on engineering approach. In addition, he has been a **"Bar Raiser"** at Amazon, participating in over **100 interviews** as an objective evaluator in the hiring process.

In addition, he has several patents and publications in **electrical engineering** and functional safety, reinforcing his impact on the **development of advanced technologies.** His projects have been implemented globally, with highlights in regions such as North America, Europe, Japan and India, where he has driven the adoption of sustainable solutions in the industrial and e-commerce sectors.

# Mr. Motamarri, Seshu

- Senior Director of Global Manufacturing Technology at 3M, Arkansas, United States
- Director of Automation and Robotics at Tyson Foods
- Hardware Development Manager III at Amazon
- Automation Leader at Corning Incorporated
- Founder and member of Quest Automation LLC
- Master of Science (MS), Electrical and Electronics Engineering at University of Houston
- Bachelor of Engineering (B.E.), Electrical and Electronics Engineering, University of Andhra
- Certification in Machinery, TÜV Rheinland Group

*Thanks to TECH, you will be able to learn with the best professionals in the world"*

## Management



### Dr. Ramón Fabresse, Felipe

· Senior Software Engineer at Acurable
· NLP Software Engineer at Intel Corporation
· Software Engineer in CATEC, Indisys
· Researcher in Aerial Robotics at the University of Seville
· PhD Cum Laude in Robotics, Autonomous Systems and Telerobotics at the University of Seville
· Degree in Computer Engineering at the University of Seville
· Master's Degree in Robotics, Automation and Telematics at the University of Seville

## Professors

**Mr. Campos Ortiz, Roberto**

◆ Software Engineer Quasar Scence Resources
◆ Software Engineer at the European Space Agency (ESA-ESAC) for the Solar Orbiter mission
◆ Content creator and Artificial Intelligence expert in the course: "Artificial Intelligence: The technology of the present-future" for the Andalusian Regional Government. Euroformac Group
◆ Quantum Computing Scientist Zapata Computing Inc
◆ Graduated in Computer Engineering at Carlos III University
◆ Master in Computer Science and Technology at Carlos III University

# 04
# Structure and Content

The syllabus of this Postgraduate Certificate is designed with the aim of offering students the most comprehensive knowledge in intelligent robots and intelligent agents. A teaching that will delve from the beginning in the foundation that makes up this technology to delve during 6 weeks of this program in the brain-algorithm connection, its applications, machine learning to lead the engineering professional to develop a Robotic Intelligent Agent. The video summaries of each topic, the specialized readings and the real cases provided by the teaching team will facilitate the learning and the practical application in the professional's day-to-day life.

*Advance your career and immerse yourself in Intelligence and its application in robots and softbots"*

## Module 1. Intelligent Agents. Applying Artificial Intelligence to Robots and *Softbots*

1.1. Intelligent Agents and Artificial Intelligence
    1.1.1. Intelligent Robots. Artificial Intelligence
    1.1.2. Intelligent Agents
        1.1.2.1. Hardware Agents. Robots
        1.1.2.2. Software Agents. *Softbots*
    1.1.3. Robotics Applications
1.2. Brain-Algorithm Connection
    1.2.1. Biological Inspiration of Artificial Intelligence
    1.2.2. Reasoning Implemented in Algorithms. Typology
    1.2.3. Explainability of Results in Artificial Intelligence Algorithms
    1.2.4. Evolution of Algorithms up to *Deep Learning*
1.3. Search Algorithms in the Solution Space
    1.3.1. Elements in Solution Space Searches
    1.3.2. Solution Space Search Algorithms in Artificial Intelligence Problems
    1.3.3. Applications of Search and Optimization Algorithms
    1.3.4. Search Algorithms Applied to Machine Learning
1.4. Machine Learning
    1.4.1. Machine Learning
    1.4.2. Supervised Learning Algorithms
    1.4.3. Unsupervised Learning Algorithms
    1.4.4. Reinforcement Learning Algorithms
1.5. Supervised Learning
    1.5.1. Supervised Learning Methods
    1.5.2. Decision Trees for Classification
    1.5.3. Support Vector Machines
    1.5.4. Artificial Neural Networks
    1.5.5. Applications of Supervised Learning
1.6. Unsupervised Learning
    1.6.1. Unsupervised Learning
    1.6.2. Kohonen Networks
    1.6.3. Self-Organizing Maps
    1.6.4. K-Means Algorithm

*Enroll now and apply the latest algorithmic advances in Artificial Intelligence projects"*

# 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:**
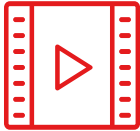
### Study Material

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.

**20%**

**25%**

**4%**

**3%**
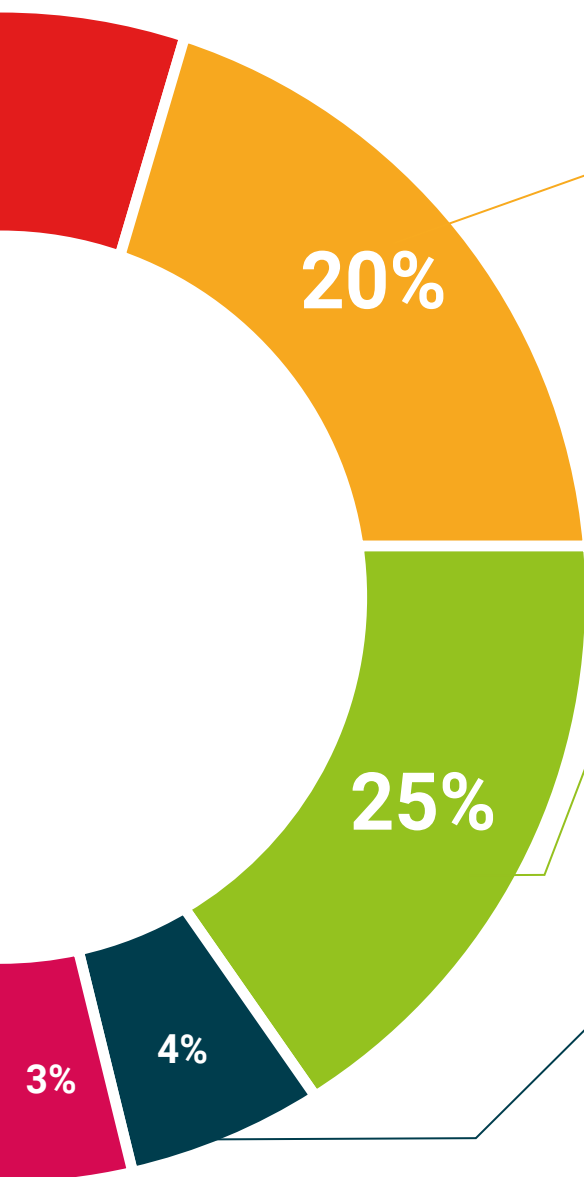
### Case Studies

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 Intelligent Agents and Artificial Intelligence 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 Intelligent Agents 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 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 Intelligent Agents and Artificial Intelligence**

Official Nº of hours: **150 h.**

## tech technological university

Awards the following

**DIPLOMA**

to

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

**POSTGRADUATE CERTIFICATE**

in

Intelligent Agents and Artificial Intelligence

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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