

# Postgraduate Certificate Assisted Development of Software Applications using Artificial Intelligence





## Postgraduate Certificate Assisted Development of Software Applications using Artificial Intelligence

- » Modality: online
- » Duration: 12 months
- » Certificate: TECH Technological University
- » Dedication: 16h/week
- » Schedule: at your own pace
- » Exams: online

Website: [www.techtute.com/in/information-technology/postgraduate-certificate/assisted-development-software-applications-artificial-intelligence](http://www.techtute.com/in/information-technology/postgraduate-certificate/assisted-development-software-applications-artificial-intelligence)

# Index

01

Introduction

---

*p. 4*

02

Objectives

---

*p. 8*

03

Course Management

---

*p. 12*

04

Structure and Content

---

*p. 16*

05

Methodology

---

*p. 20*

06

Certificate

---

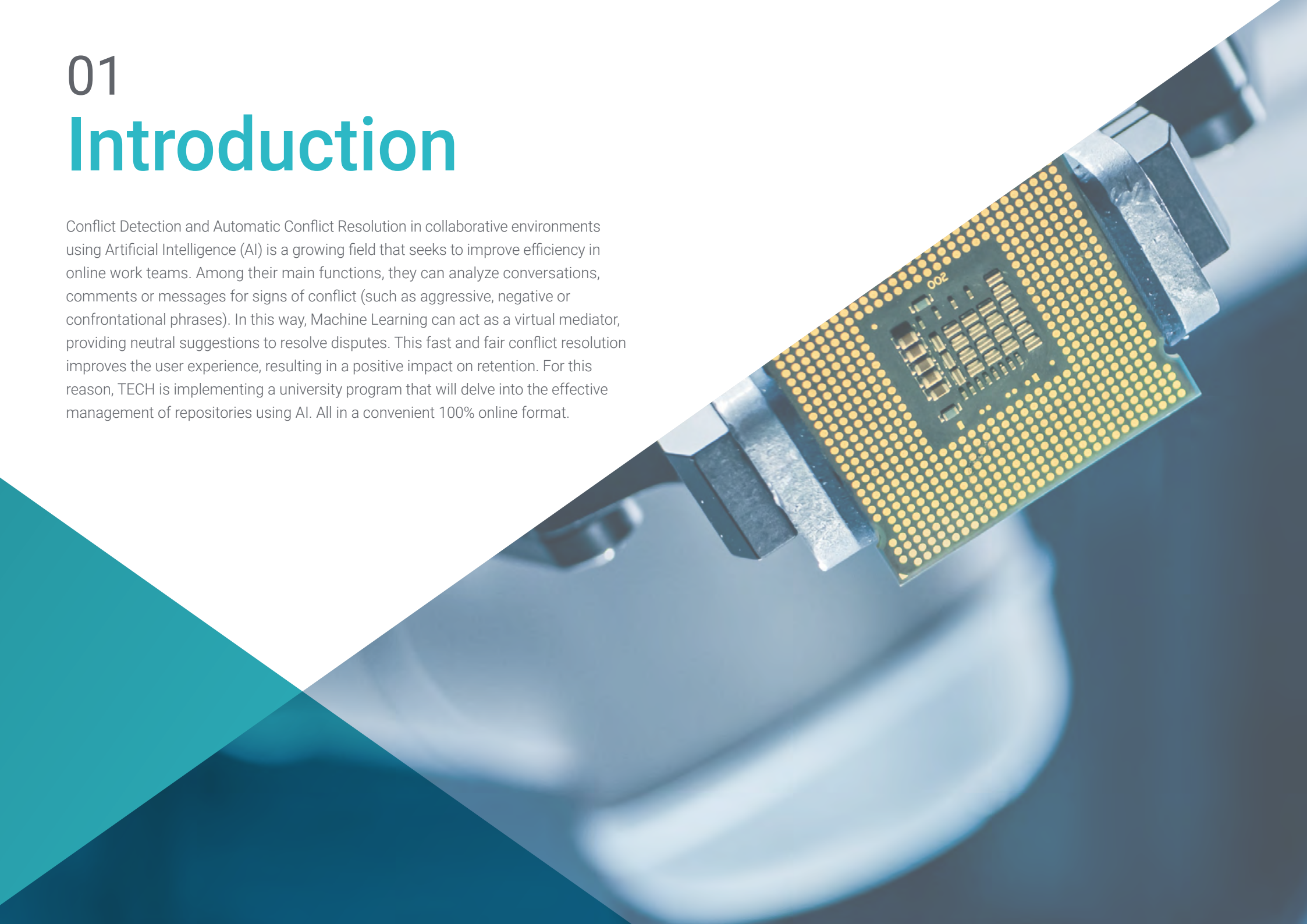
*p. 28*



# 01

# Introduction

Conflict Detection and Automatic Conflict Resolution in collaborative environments using Artificial Intelligence (AI) is a growing field that seeks to improve efficiency in online work teams. Among their main functions, they can analyze conversations, comments or messages for signs of conflict (such as aggressive, negative or confrontational phrases). In this way, Machine Learning can act as a virtual mediator, providing neutral suggestions to resolve disputes. This fast and fair conflict resolution improves the user experience, resulting in a positive impact on retention. For this reason, TECH is implementing a university program that will delve into the effective management of repositories using AI. All in a convenient 100% online format.



“

*Manage the adaptation of machine translation algorithms at the world's best digital university according to Forbes"*

Assisted Software Application Development using Machine Learning is an approach aimed at optimizing the process of creating software. The importance of this technology lies in several key benefits it brings to application development. For example, it is able to automate repetitive or tedious tasks in the execution of applications. This frees developers from routine tasks and allows them to focus on more strategic aspects of the project. In addition, AI tools are used to locate and fix bugs faster, which considerably reduces the time required to bring programs to market.

In this context, TECH creates a revolutionary program for Computer Science experts that will offer the keys to improve productivity in Software Development with AI. Designed by experts in the field, the curriculum will delve into the most important extensions for Visual Studio Code, which will allow graduates to customize development environments to improve efficiency. At the same time, the syllabus will analyze in detail the management of repositories, from the automation of technical version control processes to the integration of AI in database management. The program will also provide the most innovative tools for automatic translation for the different programming languages.

One of the advantages of being part of this unique academic opportunity is based on the convenience and adaptability provided. TECH is a pioneer in the implementation of the Relearning pedagogical methodology, which provides didactic and multimedia content repeatedly to expand and improve the assimilation of concepts. All of this is complemented with case studies refuted by the best experts in the field. It is therefore the perfect opportunity to combine learning with personal life.

This **Postgraduate Certificate in Assisted Development of Software Applications using Artificial Intelligence** 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 programming
- ♦ 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 master most advanced Artificial Intelligence Tools to Improve Productivity”*

“

*You'll integrate improved communication and collaboration between developers with GitHub Copilot"*

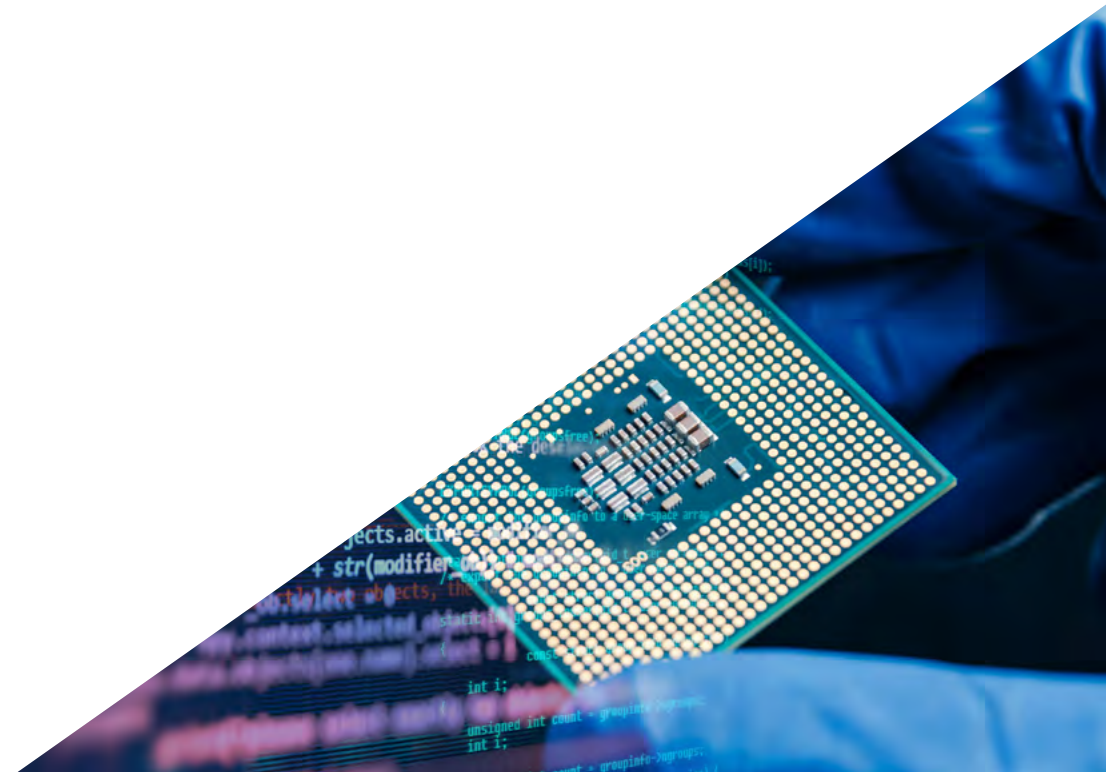
The program's teaching staff includes professionals from the field who contribute their work experience to this educational program, as well as renowned specialists from leading societies and prestigious universities.

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 perform early detection of vulnerabilities and bugs using Static Analysis.*

*Thanks to the Relearning system used by TECH you will reduce the long hours of study and memorization.*





# 02 Objectives

Upon completion of this program, graduates will have mastered the configuration of software development environments using Machine Learning tools. Therefore, the experts will apply the most advanced extensions in Visual Studio Code to improve software productivity. In addition, professionals will have a solid understanding of ChatGPT, which will enable them to implement its techniques in order to identify possible code improvements. In this way, specialists will drive more efficient programming practices and will be able to successfully meet the challenges that arise during their internship.





“

*A comprehensive and current curriculum  
configured as a high quality learning tool  
of exceptional quality”*



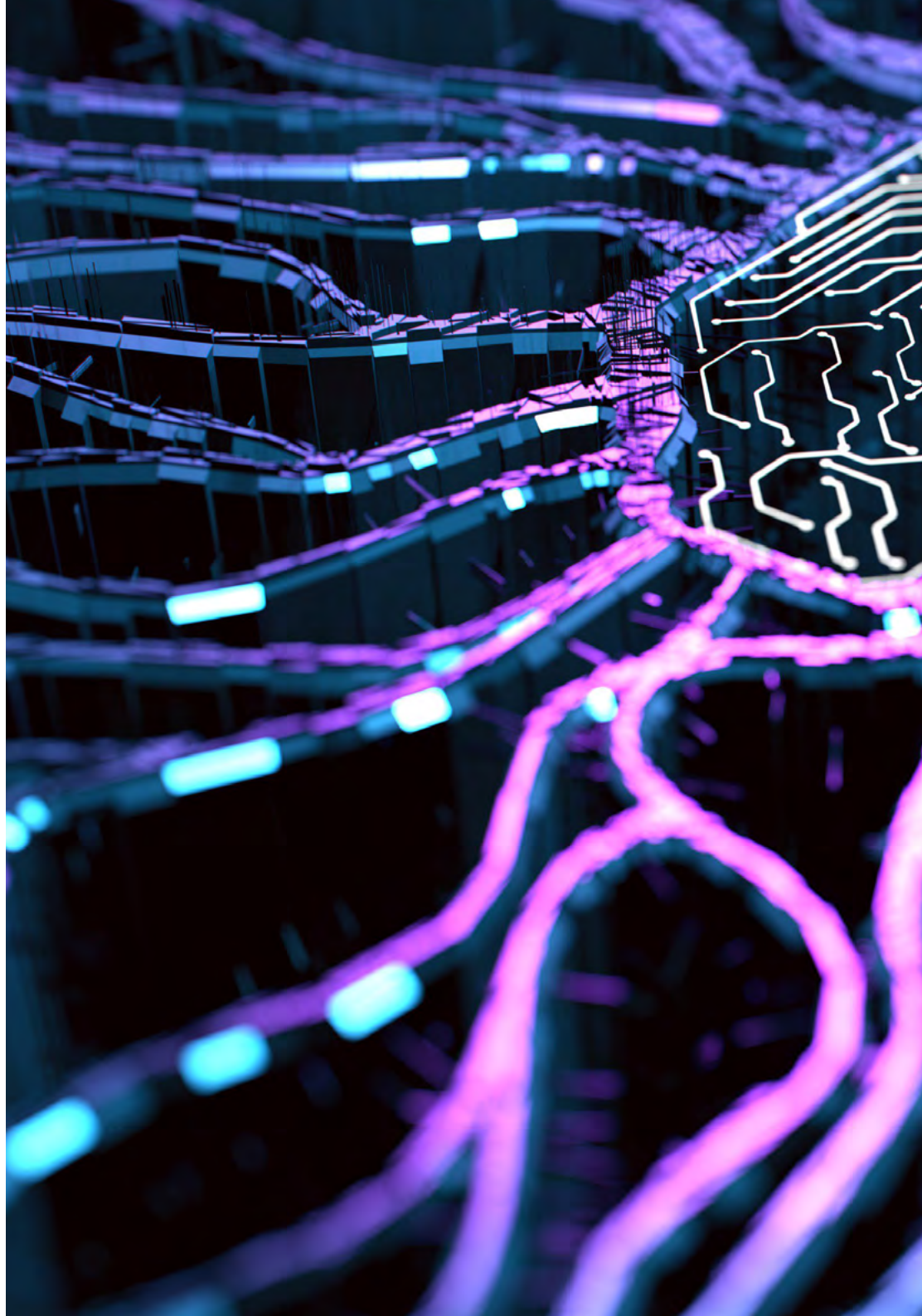
## General Objectives

---

- ◆ Develop skills to set up and manage efficient development environments, ensuring a solid foundation for the implementation of AI projects
- ◆ Acquire skills in planning, executing and automating quality tests, incorporating AI tools for bug detection and remediation
- ◆ Understand and apply performance, scalability and maintainability principles in the design of large-scale computing systems
- ◆ Become familiar with the most important design patterns and apply them effectively in software architecture



*With the highest rated learning assistance methods in online teaching, this Postgraduate Certificate will allow you to learn smoothly, steadily and effectively”*







## Specific Objectives

---

- ◆ Delve into the implementation of must-have AI extensions in Visual Studio Code to improve productivity and facilitate software development.
- ◆ Gain a solid understanding of basic AI concepts and their application in software development, including machine learning algorithms, natural language processing, neural networks, etc
- ◆ Master the setup of optimized development environments, ensuring that students are able to create environments conducive to AI projects
- ◆ Apply specific techniques using ChatGPT for automatic identification and correction of potential code improvements, encouraging more efficient programming practices
- ◆ Promote collaboration between different programming professionals (from programmers to data engineers to user experience designers) to develop effective and ethical AI software solutions

# 03

# Course Management

In line with its philosophy of providing the highest quality education, TECH offers students a first class teaching staff. These experts have a solid knowledge of the most innovative techniques in Assisted Development of Software Applications using AI. For this reason, the syllabus that makes up this program will offer the graduate contents characterized by their high quality. In this way, they will have the guarantees they need to specialize at an international level in a professional field that offers numerous opportunities.







“

*The diversity of talents and knowledge of the faculty will create a dynamic learning environment. Learn with the best!”*

## Management



### Dr. Peralta Martín-Palomino, Arturo

- CEO and CTO at Prometheus Global Solutions
- CTO at Korporate Technologies
- CTO at AI Shepherds GmbH
- Consultant and Strategic Business Advisor at Alliance Medical
- Director of Design and Development at DocPath
- Ph.D. in Psychology from the University of Castilla - La Mancha
- PhD in Economics, Business and Finance from the Camilo José Cela University
- PhD in Psychology from University of Castilla – La Mancha
- Máster in Executive MBA por la Universidad Isabel I
- Master's Degree in Sales and Marketing Management, Isabel I University
- Expert Master's Degree in Big Data by Hadoop Training
- Master's Degree in Advanced Information Technologies from the University of Castilla - la Mancha
- Member of: SMILE Research Group



### **Mr. Castellanos Herreros, Ricardo**

- Specialist in Computer Systems Engineering
- Chief Technology Officer at OWQLO
- Freelance Technical Consultant
- Mobile Applications Developer for eDreams, Fnac, Air Europa, Bankia, Cetelem, Banco Santander, Santillana, Groupón and Grupo Planeta
- Web Developer for Openbank and Banco Santander
- Machine Learning Engineer course at Udacity
- Technical Engineer in Computer Systems from the University of Castilla la Mancha

# 04

## Structure and Content

This program will provide computer scientists with a holistic view of the configuration of the software development environment using AI. To achieve this, the curriculum will delve into repository management by combining elements in Visual Studio Code and ChatGPT. This will allow students to perform predictive analysis of changes, to implement improvements in the organization. Likewise, the syllabus will analyze the design of the No-code User Interfaces in order to optimize productivity in the projects. In this sense, graduates will improve interoperability between different languages through automatic translation.



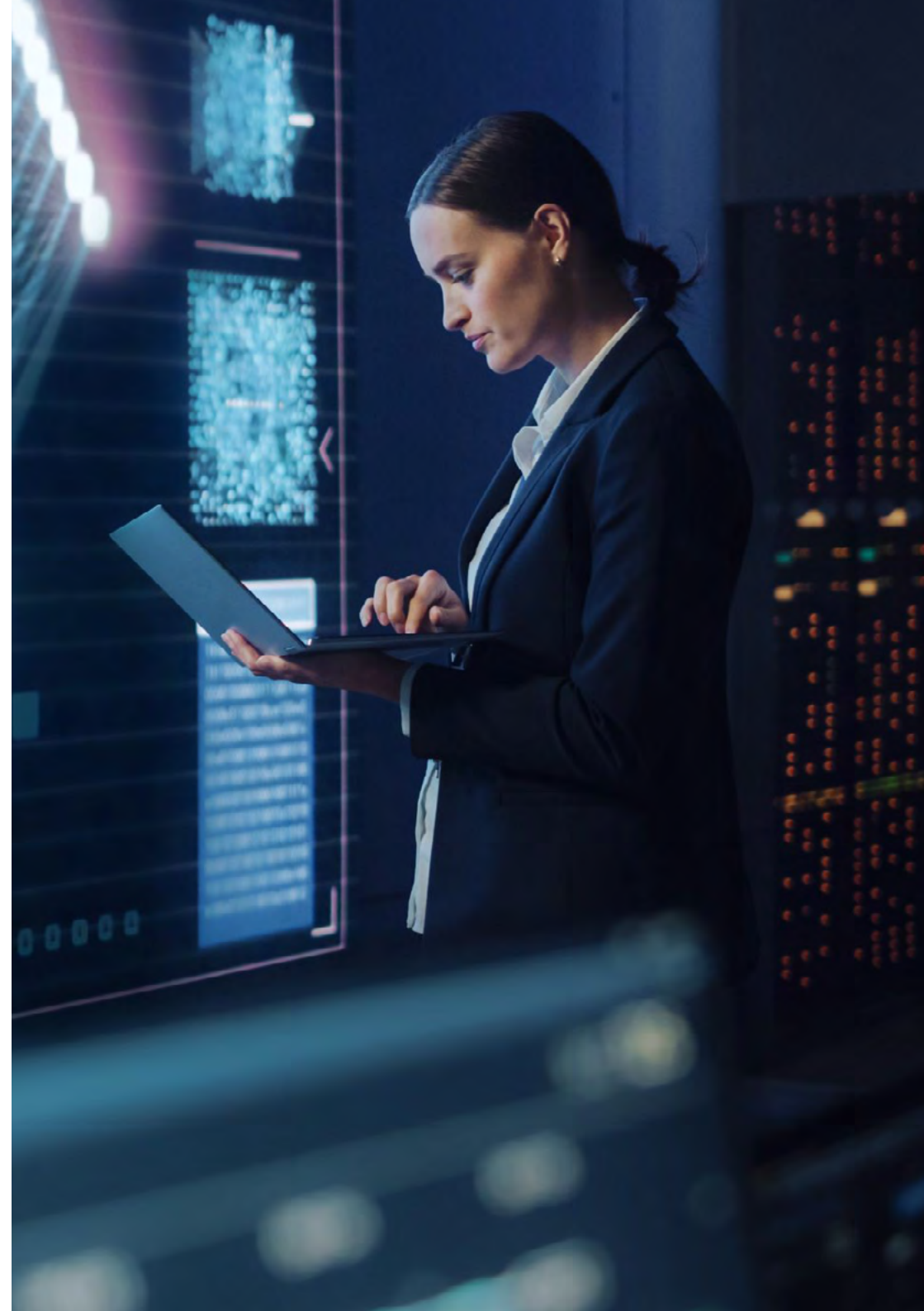


“

*A unique, key and decisive learning experience that will boost your professional development in just 6 weeks”*

## Module 1. Improving Software Development Productivity with AI

- 1.1. Prepare a Suitable Development Environment
  - 1.1.1. Selection of Essential Tools for AI Development
  - 1.1.2. Configuration of the Chosen Tools
  - 1.1.3. Implementation of CI/CD Pipelines Adapted to AI Projects
  - 1.1.4. Efficient Management of Dependencies and Versions in Development Environments
- 1.2. Essential AI Extensions for Visual Studio Code
  - 1.2.1. Exploring and Selecting AI Extensions for Visual Studio Code
  - 1.2.2. Integration of Static and Dynamic Analysis Tools in the SDI
  - 1.2.3. Automation of Repetitive Tasks with Specific Extensions
  - 1.2.4. Customization of the Development Environment to Improve Efficiency
- 1.3. No-code Design of User Interfaces with AI Elements
  - 1.3.1. No-code Design Principles and Their Application to User Interfaces
  - 1.3.2. Incorporation of AI Elements in the Visual Design of Interfaces
  - 1.3.3. Tools and Platforms for *No-code* Creation of Intelligent Interfaces
  - 1.3.4. Evaluation and Continuous Improvement of *No-code* Interfaces with AI
- 1.4. Code Optimization using ChatGPT
  - 1.4.1. Identifying Duplicate Code
  - 1.4.2. Refactor
  - 1.4.3. Create Readable Code
  - 1.4.4. Understanding What Code Does
  - 1.4.5. Improving Variable and Function Names
  - 1.4.6. Automatic Documentation Creation
- 1.5. Repository Management with AI
  - 1.5.1. Automation of Version Control Processes with AI Techniques
  - 1.5.2. Conflict Detection and Automatic Resolution in Collaborative Environments
  - 1.5.3. Predictive Analysis of Changes and Trends in Code Repositories
  - 1.5.4. Improved Organization and Categorization of Repositories using AI



- 1.6. Integration of AI in Database Management
  - 1.6.1. Query and Performance Optimization Using AI Techniques
  - 1.6.2. Predictive Analysis of Database Access Patterns
  - 1.6.3. Implementation of Recommender Systems to Optimize Database Structure
  - 1.6.4. Monitoring and Proactive Detection of Potential Problems in Databases
- 1.7. Fault Finding and Creation of Unit Tests with AI
  - 1.7.1. Automatic Generation of Test Cases Using AI Techniques
  - 1.7.2. Early Detection of Vulnerabilities and Bugs using Static Analysis with AI
  - 1.7.3. Improving Test Coverage by Identifying Critical Areas with AI
- 1.8. Pair Programming with GitHub Copilot
  - 1.8.1. Integration and Effective Use of GitHub Copilot in Pair Programming Sessions
  - 1.8.2. Integration Improvements in Communication and Collaboration between Developers with GitHub Copilot
  - 1.8.3. Integration Strategies for Making the Most of Code Hints Generated by GitHub Copilot
  - 1.8.4. Integration Case Studies and Best Practices in AI-assisted Pair Programming
- 1.9. Automatic Translation between Programming Languages
  - 1.9.1. Programming Language Specific Machine Translation Tools and Services
  - 1.9.2. Adapting Machine Translation Algorithms to Development Contexts
  - 1.9.3. Improving Interoperability between Different Languages by Machine Translation
  - 1.9.4. Assessing and Mitigating Potential Challenges and Limitations of Machine Translation
- 1.10. Recommended AI Tools to Improve Productivity
  - 1.10.1. Comparative Analysis of AI Tools for Software Development
  - 1.10.2. Integration of AI Tools in Workflows
  - 1.10.3. Automation of Routine Tasks with AI Tools
  - 1.10.4. Evaluating and Selecting Tools Based on Context and Project Requirements



*Enjoy the most up-to-date educational content available in innovative multimedia formats to optimize your studies"*



# 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.





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 Assisted Development of Software Applications using 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 Assisted Development of Software Applications using 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 certificate 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 Assisted Development of Software Applications using Artificial Intelligence**

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.



future  
health confidence people  
education information tutors  
guarantee accreditation teaching  
institutions technology learning  
community commitment  
personalized service innovation  
knowledge present  
development languages  
classroom



## Postgraduate Certificate Assisted Development of Software Applications using Artificial Intelligence

- » Modality: **online**
- » Duration: **12 months**
- » Certificate: **TECH Technological University**
- » Dedication: **16h/week**
- » Schedule: **at your own pace**
- » Exams: **online**

# Postgraduate Certificate

## Assisted Development of Software Applications using Artificial Intelligence