Postgraduate Certificate

Artificial Intelligence and Machine Learning in Front-End Web Development

tech global university

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Postgraduate Certificate
Artificial Intelligence and Machine Learning in Front-End Web Development

- Modality: **online**
- Duration: **6 weeks**
- Certificate: **TECH Global University**
- Accreditation: **6 ECTS**
- Schedule: **at your own pace**
- Exams: **online**

Website: www.techtitute.com/us/information-technology/postgraduate-certificate/artificial-intelligence-machine-learning-front-end-web-development

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Introduction

Artificial Intelligence has become a mainstay for various industries, changing the way people interact with the digital world. The Front-End Web Development field employs these intelligent tools to personalize the user experience and provide individualized recommendations based on audience behavior. Given the virtual transformation landscape that companies are currently experiencing, the market is constantly demanding IT professionals who are highly specialized in the integration of Artificial Intelligence in the Frontend. To take advantage of this situation, developers need to keep abreast of all the advances in this field. For this reason, TECH launches a university program that will deal with recent innovations in a convenient 100% online format.

Thanks to this Relearning-based Postgraduate Certificate, you will train models for specific tasks such as image classification, natural language processing or object detection"

Machine Learning is a branch of Artificial Intelligence focused on the development of systems that can learn and improve automatically from experience without being explicitly programmed. This discipline brings numerous benefits to Front-End Web Development, including automating repetitive tasks ranging from moderating user-generated content to sorting messages. In this way, developers can focus on more creative and labor-intensive tasks. In turn, this tool is useful for detecting suspicious patterns such as fraudulent transactions or malicious activity. Therefore, this helps to optimize the security of websites and protect sensitive customer data.

In this scenario, TECH launches a pioneering program in Artificial Intelligence and Machine Learning in Front-End Web Development. Designed by experts in this field, the academic itinerary will equip computer scientists with the necessary skills to innovate at the intersection of emerging technology and web design. The syllabus will delve into the handling of the most popular JavaScript tools and libraries for AI/ML, including TensorFlow.js. This will enable graduates to develop interactive experiences that respond in real time to user actions, such as chatbots that respond to audience queries. In addition, the teaching materials will provide Intelligent Caching strategies aimed at improving the efficiency of applications by temporarily storing data in a location close to the access point.

Moreover, the university program is based on the revolutionary Relearning method, based on the reiteration of key concepts. Therefore, graduates will be able to reduce the long hours of study and memorization, since they will consolidate the most important terms of the syllabus in a simple way. A unique opportunity for updating through an academic experience that allows, with its methodology, to reconcile daily professional and personal activities with a high-level academic proposal.

This **Postgraduate Certificate in Artificial Intelligence and Machine Learning in Front-End Web Development** contains the most complete and up-to-date educational program on the market. The most important features include:

- The development of practical cases presented by experts in Front-End Web Development
- 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

TECH's 100% online methodology will allow you to update your knowledge without interrupting your professional work"

You will delve into the latest trends in Interaction Design based on Artificial Intelligence capabilities"

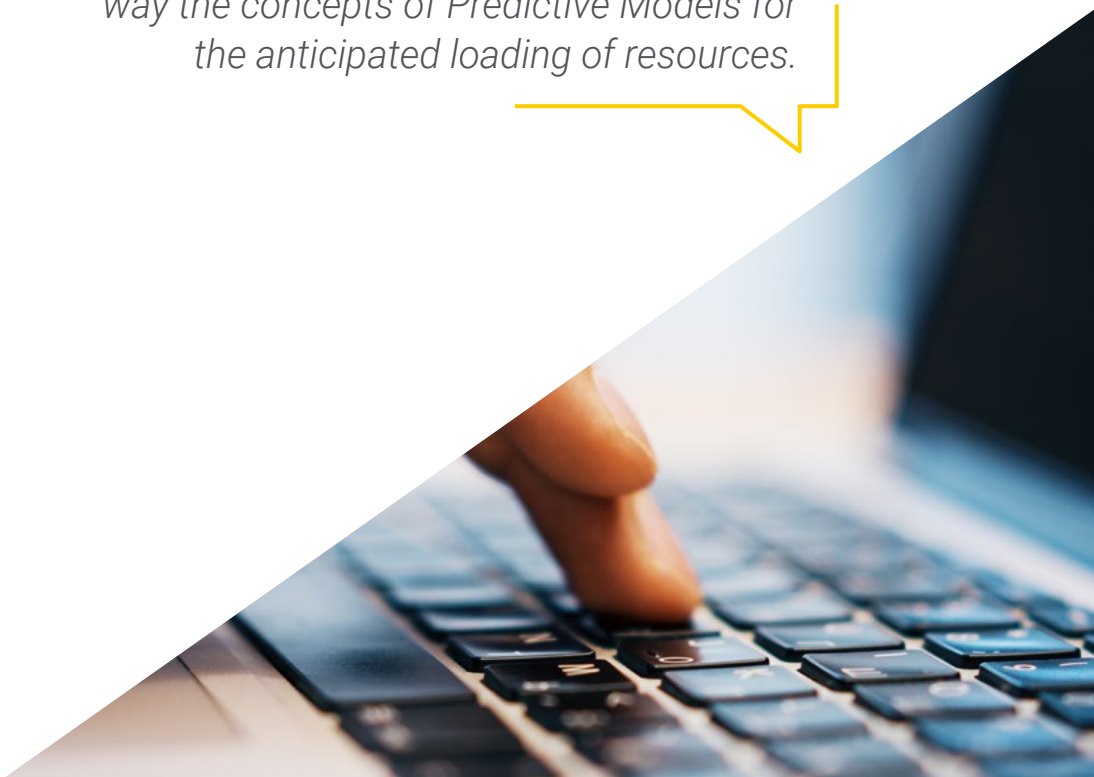
You will develop skills to effectively manage TensorFlow.js and develop customized recommender systems to optimize the user experience.

The interactive summaries of each topic will allow you to consolidate in a more dynamic way the concepts of Predictive Models for the anticipated loading of resources.

The program's teaching staff includes professionals from the sector who contribute their work experience to this training 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 prepare for 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 course. 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

After completing this university program, computer scientists will apply the concepts of Artificial Intelligence and Machine Learning in Front-End Web Development. At the same time, graduates will acquire practical skills to handle tools such as TensorFlow.js to run models directly in the browser. In this sense, developers will have at their disposal the most innovative data processing techniques to prepare information sets for use, including data cleansing, normalization and feature engineering. In addition, they will tackle complex problems related to the implementation of these systems, thus enhancing their critical thinking and creativity.

You will acquire the most cutting-edge strategies to optimize the performance and efficiency of Machine Learning models, taking into account resource constraints such as processing power"

General Objectives

- Provide a solid grounding in Artificial Intelligence (AI) and Machine Learning (ML) concepts, preparing developers to integrate these technologies in the creation of user interfaces and user experiences
- Familiarize students with tools such as TensorFlow.js, allowing them to build and train ML models directly in the browser
- Demonstrate how AI can be used to personalize content, improve accessibility, optimize performance and accessibility, optimize performance, and secure web applications, all while maintaining high ethical standards
- Develop specialized knowledge about Artificial Intelligence (AI) and Machine Learning (ML)

Specific Objectives

- Specific Objectives Develop specialized knowledge about Artificial Intelligence (AI) and Machine Learning (ML)
- Integrate ML models in front-end applications
- Personalize content and recommendations with AI
- Implement image recognition and NLP on the frontend
- Optimize application performance with AI
- Secure and validate front-end AI integrations

The goal of TECH is you: give a boost to your career and stand out in a very relevant field for companies"

03

Course Management

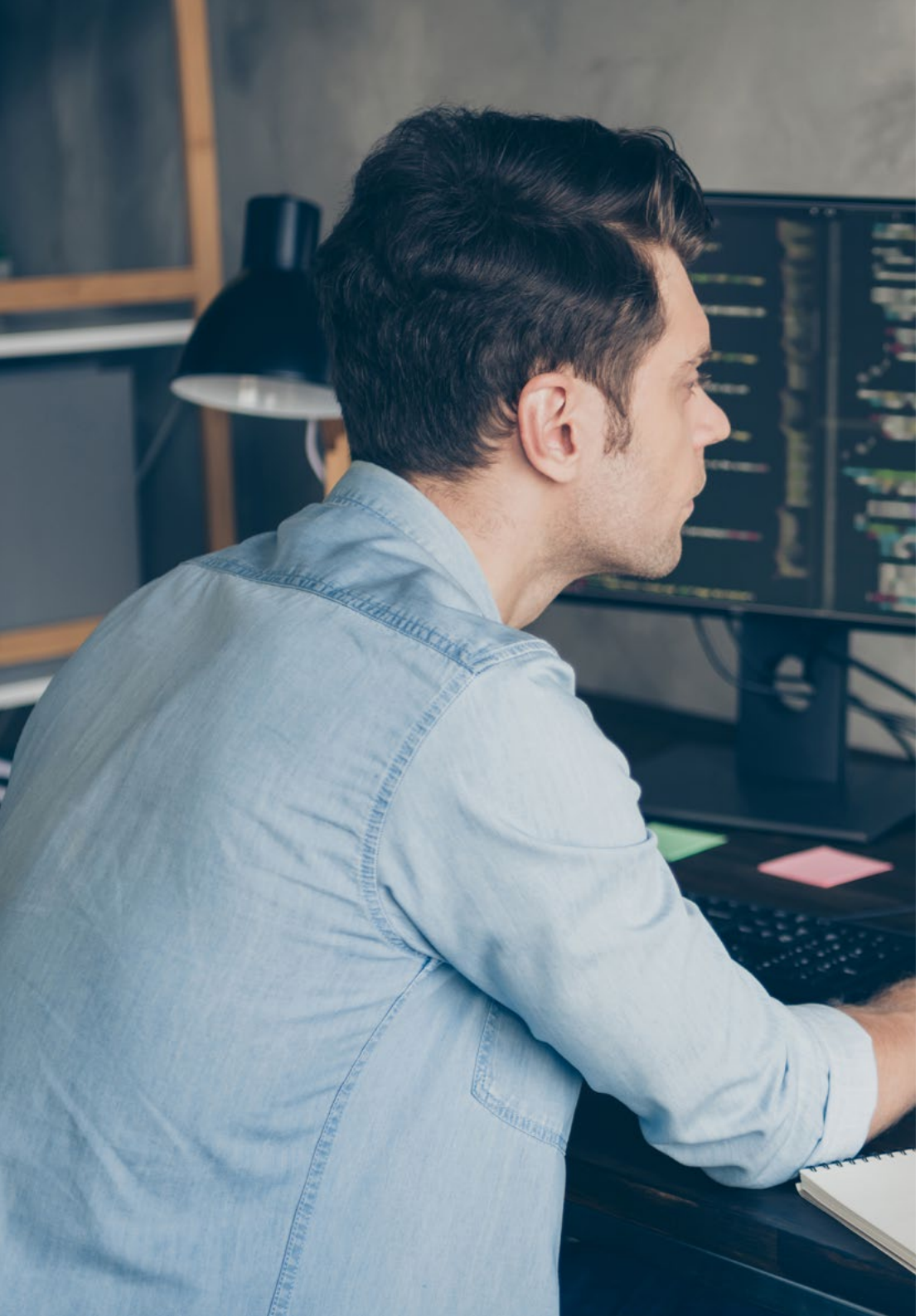
Aware of the importance that teachers acquire to create collaborative learning environments, TECH brings together in this Postgraduate Certificate a group of experts in Front-End Web Development. These professionals have a vast professional career, in which they have developed multiple innovative solutions to optimize the performance of technology companies. In addition, they stand out for being up to date with the latest trends in their field of specialization. In this way, they will provide students with the most complete and up-to-date information to guarantee successful learning. This will enable graduates to broaden their professional horizons considerably.

You will be advised at all times by the teaching staff, made up of professionals with extensive experience in Front-end Development"

Management

Mr. Utrilla Utrilla, Rubén

- Technology Project Manager at Serquo
- Fullstack Developer at ESSP
- Junior Fullstack Developer at Sinis Technology S.L
- Junior Fullstack Developer at Escuela Politécnica Cantoblanco Campus
- Master in AI and Innovation by Founderz
- Degree in Computer Engineering from the Autonomous University of Madrid
- Google Cloud Developer course in Google Academic Program



Take the opportunity to learn about the latest advances in this field in order to apply it to your daily practice"

04

Structure and Content

This program will focus on the fusion of Artificial Intelligence and Machine Learning with Front-End Web Development, which will open a new horizon of possibilities for creating personalized user experiences. The curriculum will explore the fundamentals of AI/ML, which will enable computer scientists to analyze consumer behavior and tailor the user interface to deliver a more individualized experience. The curriculum will provide graduates with the most innovative JavaScript tools and libraries (including TensorFlow.js) to run models directly in browsers.

A syllabus developed by experts and top-level teaching content are the keys to a successful professional career"

Module 1. Artificial Intelligence and Machine Learning in Front-End Web Development

1.1. Artificial Intelligence (AI) and Machine Learning (ML) from a Front-End Approach
- 1.1.1. Artificial Intelligence (AI) and Machine Learning (ML) for Front-End Web Developers
- 1.1.2. JavaScript Tools and Libraries for AI/ML
- 1.1.3. Basic Integration of ML Models in Front-End Applications

1.2. Frameworks and JavaScript Libraries for ML from a Front-End Approach
- 1.2.1. TensorFlow.js and Its Ecosystem
- 1.2.2. Creating and Training Models Directly in the Browser
- 1.2.3. Examples and Practical Applications

1.3 Personalization and User Experience Enhanced by AI from a Front-End Approach
- 1.3.1. Use of AI for Content Personalization and Recommendations
- 1.3.2. Improving UX with Chatbots and Virtual Assistants
- 1.3.3. User Behavior Analysis and Interface Optimization

1.4. Image Recognition and Natural Language Processing (NLP) from a Front-End Approach
- 1.4.1. Implementation of Image Recognition on the Frontend
- 1.4.2. Integration of NLP Capabilities to Improve User Interaction
- 1.4.3. Tools and APIs Available for Developers

1.5. Accessibility and Artificial Intelligence (AI) from a Front-End Approach
- 1.5.1. AI Applications to Improve Web Accessibility
- 1.5.2. Automatic Generation of Image Descriptions
- 1.5.3. Adaptive Interfaces Based on User Needs

1.6. Performance Optimization with Artificial Intelligence (AI) from a Front-End Approach
- 1.6.1. Use of Predictive Models for Anticipatory Resource Loading
- 1.6.2. Predictive Analytics for Application Performance Improvement
- 1.6.3. Intelligent Caching Strategies

1.7. Security and Ethics in the Integration of Artificial Intelligence (AI) from a Front-End Approach
- 1.7.1. Ethical Considerations in the Use of AI on the Frontend
- 1.7.2. Bias Prevention and Privacy Assurance
- 1.7.3. AI-Based Security Enhancements

1.8. Testing and Debugging of Artificial Intelligence (AI) Functionalities from a Front-End Approach
- 1.8.1. Tools and Techniques for Testing AI Integrations
- 1.8.2. Debugging of ML Models in Web Applications
- 1.8.3. Validation and Quality Assurance of AI Predictions

1.9. UI/UX of the Future with Artificial Intelligence (AI) from a Front-End Approach
- 1.9.1. Adaptive and Predictive Interface Design
- 1.9.2. Examples of Innovative UIs Enhanced by AI
- 1.9.3. Trends in Interaction Design Based on AI Capabilities

1.10. Emerging Trends and Future of Artificial Intelligence (AI) from a Front-End Approach
- 1.10.1. Advances in Artificial Intelligence (AI) Technologies and Their Potential in Web Development
- 1.10.2. Generative Artificial Intelligence (AI) and Its Impact on Web Content
- 1.10.3. Future Visions for the Integration of Artificial Intelligence (AI) in User Experiences

The implementation of Artificial Intelligence and Machine Learning in Front-End Web Development has a growing future. Enroll now and open up new opportunities"

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

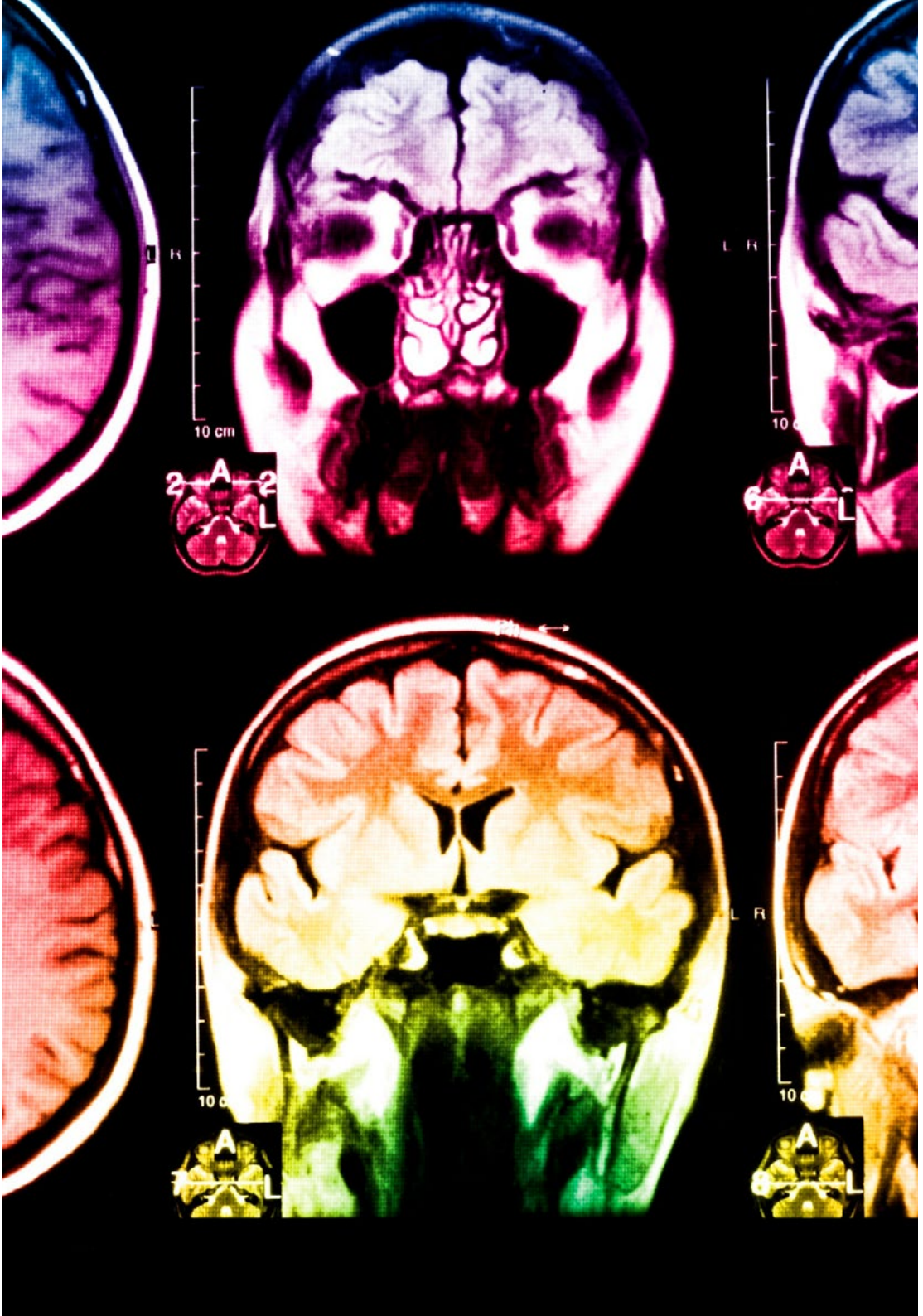
TECH effectively combines the Case Study methodology with a 100% online learning system based on repetition, which combines different teaching elements in each lesson.

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.

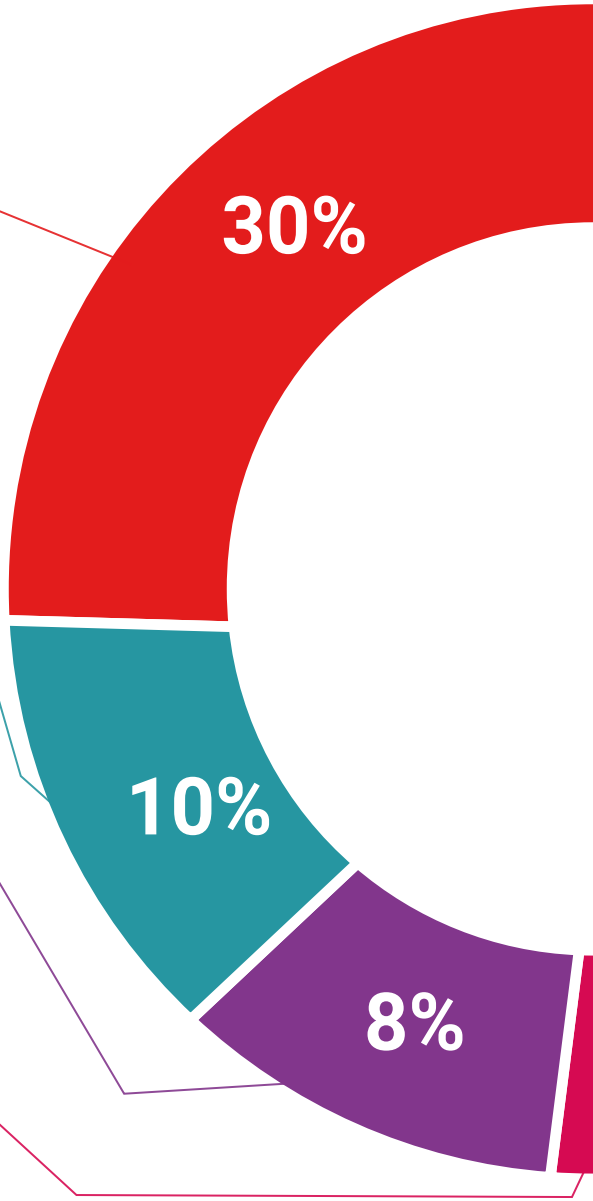
Learning from an Expert strengthens knowledge and memory, and generates confidence in future difficult decisions.

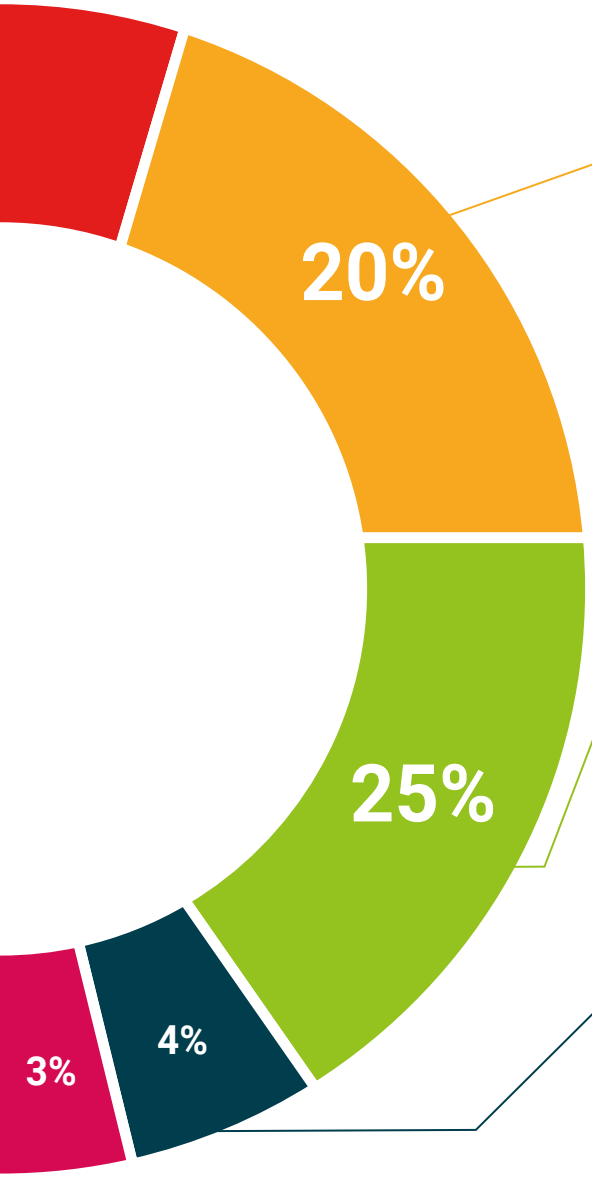
Practising Skills and Abilities

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 Artificial Intelligence and Machine Learning in Front-End Web Development guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Certificate issued by TECH Global University.

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

This private qualification will allow you to obtain a **Postgraduate Certificate in Artificial Intelligence and Machine Learning in Front-End Web Development** endorsed by **TECH Global University**, the world's largest online university.

TECH Global University, is an official European University publicly recognized by the Government of Andorra ***(official bulletin)***. Andorra is part of the European Higher Education Area (EHEA) since 2003. The EHEA is an initiative promoted by the European Union that aims to organize the international training framework and harmonize the higher education systems of the member countries of this space. The project promotes common values, the implementation of collaborative tools and strengthening its quality assurance mechanisms to enhance collaboration and mobility among students, researchers and academics.

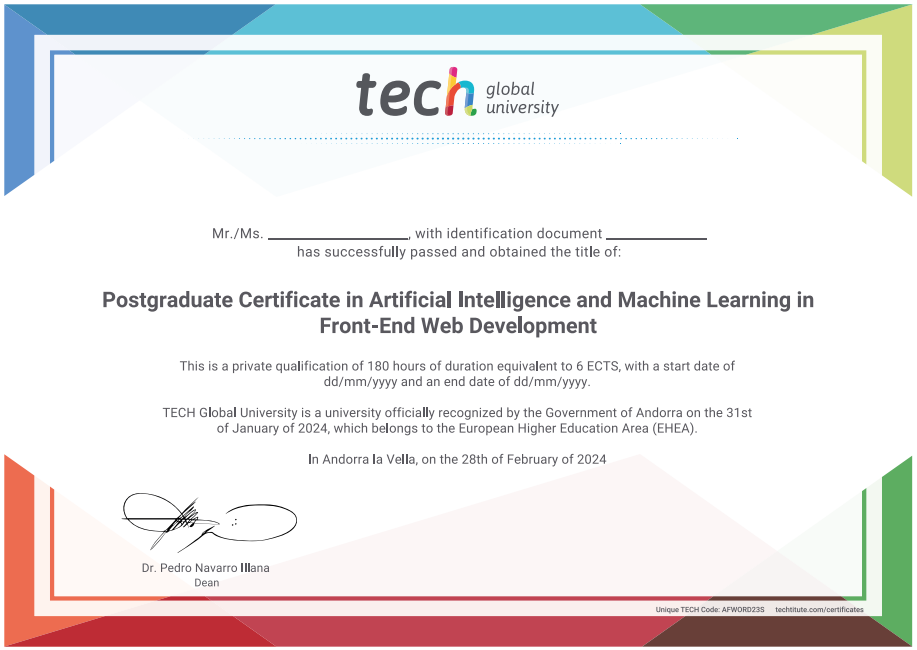
This **TECH Global University** private qualification, is a European program of continuing education and professional updating that guarantees the acquisition of competencies in its area of knowledge, providing a high curricular value to the student who completes the program.

Title: **Postgraduate Certificate in Artificial Intelligence and Machine Learning in Front-End Web Development**

Modality: **online**

Duration: **6 weeks**

Accreditation: **6 ECTS**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Mr./Ms. _____, with identification document _____
has successfully passed and obtained the title of:

Postgraduate Certificate in Artificial Intelligence and Machine Learning in Front-End Web Development

This is a private qualification of 180 hours of duration equivalent to 6 ECTS, with a start date of dd/mm/yyyy and an end date of dd/mm/yyyy.

TECH Global University is a university officially recognized by the Government of Andorra on the 31st of January of 2024, which belongs to the European Higher Education Area (EHEA).

In Andorra la Vella, on the 28th of February of 2024

Dr. Pedro Navarro Illana
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 Global University will make the necessary arrangements to obtain it, at an additional cost.

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