

Postgraduate Certificate

Augmented and Virtual Reality in Front-End Web Development





Postgraduate Certificate Augmented and Virtual Reality 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.techtute.com/us/information-technology/postgraduate-certificate/augmented-virtual-reality-front-end-web-development

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01

Introduction

The integration of Augmented Reality (AR) and Virtual Reality (VR) in front-end web development allows for a more immersive and personalized interaction, improving usability and user retention. In addition, AR and VR offer new ways of presenting information and content, which facilitates the understanding of complex concepts and promotes creativity in interface design. Therefore, to superimpose virtual elements in the user's physical environment or create new worlds, these technologies redefine the standards of the web experience, by offering visually stunning and highly interactive experiences. Therefore, TECH has developed this comprehensive 100% online program, based on the Relearning methodology, a revolutionary learning method that reduces long hours of study and memorization.



“

Thanks to this 100% online Postgraduate Certificate, you will be able to create innovative and highly immersive user interfaces that push the boundaries of the traditional web experience. Enroll now!”

The inclusion of Augmented Reality (AR) and Virtual Reality (VR) in front-end web development offers an immersive and highly interactive experience for users. Therefore, by leveraging these emerging technologies, developers can create innovative user interfaces that go beyond the traditional boundaries of the screen, allowing them to interact with content in a more intuitive and immersive way.

This is how this Postgraduate Certificate was created, which offers a solid understanding of WebXR and its APIs, as well as the essential differences between Augmented Reality (AR) and Virtual Reality (VR). In this way, professionals will explore how to leverage these technologies on the frontend to develop innovative applications, focusing on mastering the fundamentals of WebXR and its API, enabling them to create AR experiences on the web and interactive VR environments.

There will also be an emphasis on UI/UX design for WebXR applications, where computer scientists will create intuitive and engaging interfaces that enhance the user experience through techniques to optimize performance, ensuring they run smoothly and efficiently on a variety of devices and platforms. In addition, the importance of ensuring accessibility in WebXR applications will be addressed.

Finally, it will focus on performance optimization for WebXR experiences, addressing crucial aspects such as fast loading, smooth responsiveness and resource consumption efficiency. Graduates will thus acquire practical skills to ensure that their WebXR applications are accessible and functional for a wide range of devices and users.

In this context, TECH has implemented a 100% online and totally flexible academic program, to the extent that students will only need an electronic device with an Internet connection to access all the teaching materials.

At the same time, students can benefit from the revolutionary Relearning methodology, which consists of repetition of fundamental concepts for an optimal and organic assimilation of content.

This **Postgraduate Certificate in Augmented and Virtual Reality 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 Augmented and Virtual Reality 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



AR and VR on the web frontend will provide you with unique opportunities for product visualization, interactive learning and scenario simulation, enhancing the overall user experience”

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You will become familiar with a variety of specific frameworks and libraries designed for creating web AR experiences and interactive VR environments. With all the TECH quality guarantees!"

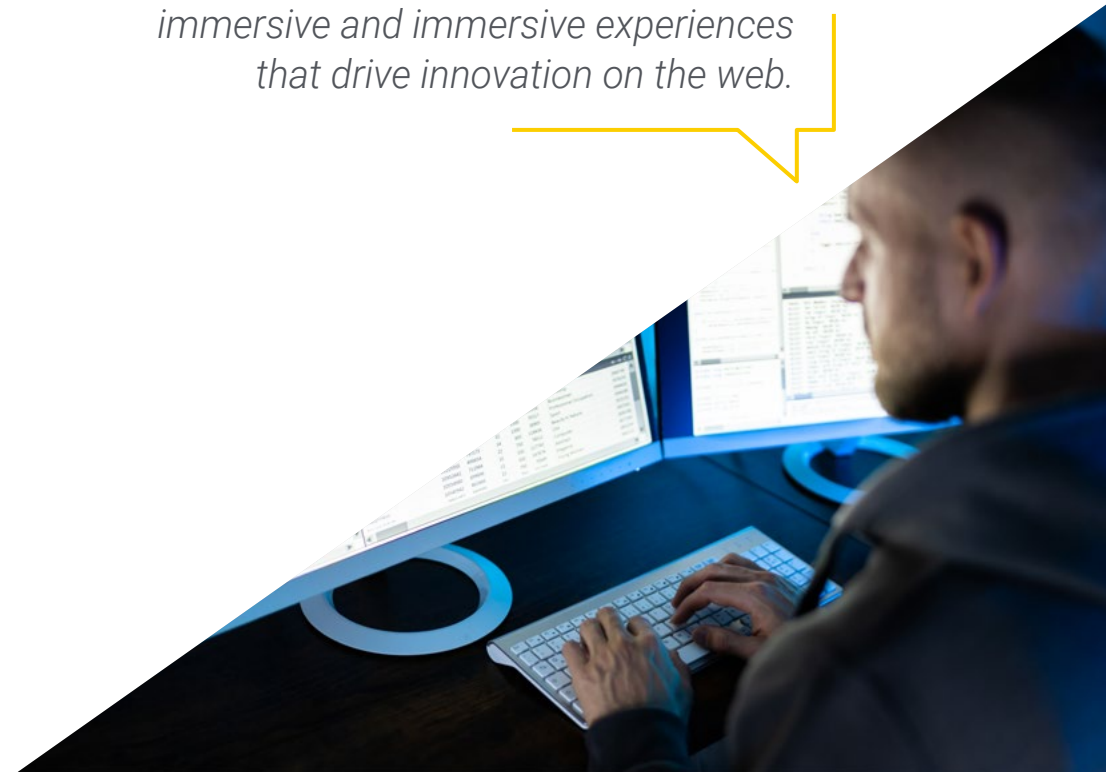
The program's teaching staff includes professionals from the field who contribute their work experience to this educational program, as well as renowned specialists from leading societies and prestigious universities.

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 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.

You will use specific frameworks and libraries to design WebXR applications, focusing on design principles, usability and performance optimization. What are you waiting for to enroll?"

From understanding fundamental concepts to mastering specific tools and techniques, you'll be prepared to create immersive and immersive experiences that drive innovation on the web.



02 Objectives

The main objective of this Postgraduate Certificate will be to provide IT professionals with a deep and practical understanding of the emerging Augmented Reality (AR) and Virtual Reality (VR) technologies in the context of front-end web development. In this way, it will enable professionals to master the fundamentals of WebXR and its API, as well as understand the fundamental differences between AR and VR. In addition, the program will focus on the development of solid technical skills to create AR experiences on the web, design interactive VR environments and optimize the performance and accessibility of these applications.



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You will be trained to create immersive, user-centric front-end web experiences that take full advantage of the capabilities of Augmented Reality and Virtual Reality”



General Objectives

- ♦ Provide a solid understanding of WebXR, including its APIs, and the fundamental differences between AR and VR, in order to develop applications that leverage these technologies on the frontend
- ♦ Utilize specific frameworks and libraries to create AR experiences on the web and interactive VR environments, focusing on design principles, usability, and performance optimization



The goal of this high quality university program will be to prepare you to face the challenges and opportunities of Augmented and Virtual Reality applied in Front-End Web Development”





Specific Objectives

- ♦ Master the fundamentals of WebXR and its API
- ♦ Develop AR experiences on the web
- ♦ Create interactive VR environments
- ♦ Design UI/UX for WebXR applications
- ♦ Optimize performance for WebXR experiences
- ♦ Ensure accessibility in WebXR applications

03

Course Management

The teaching staff behind this Postgraduate Certificate is composed of experts at the forefront of technology and web programming. In addition to their solid academic training, these mentors have practical experience in the development and implementation of front-end web applications using Augmented and Virtual Reality technologies. As such, their commitment to educational excellence is reflected in their pedagogical approach, focused on stimulating critical thinking, problem solving and collaborative work.



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The teachers of this academic program are highly trained in the fundamental principles of Augmented Reality (AR) and Virtual Reality (VR), as well as in front-end development applied to these emerging technologies”

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



04

Structure and Content

The content is designed to provide professionals with a comprehensive and practical understanding of emerging Augmented Reality (AR) and Virtual Reality (VR) technologies in the context of web development. As such, computer scientists will explore the fundamentals of WebXR and its API, as well as the essential differences between AR and VR, covering the creation of AR experiences on the web and the design of interactive VR environments through specific frameworks and libraries. In addition, crucial aspects such as design principles, usability, performance optimization and accessibility in WebXR applications will be addressed.

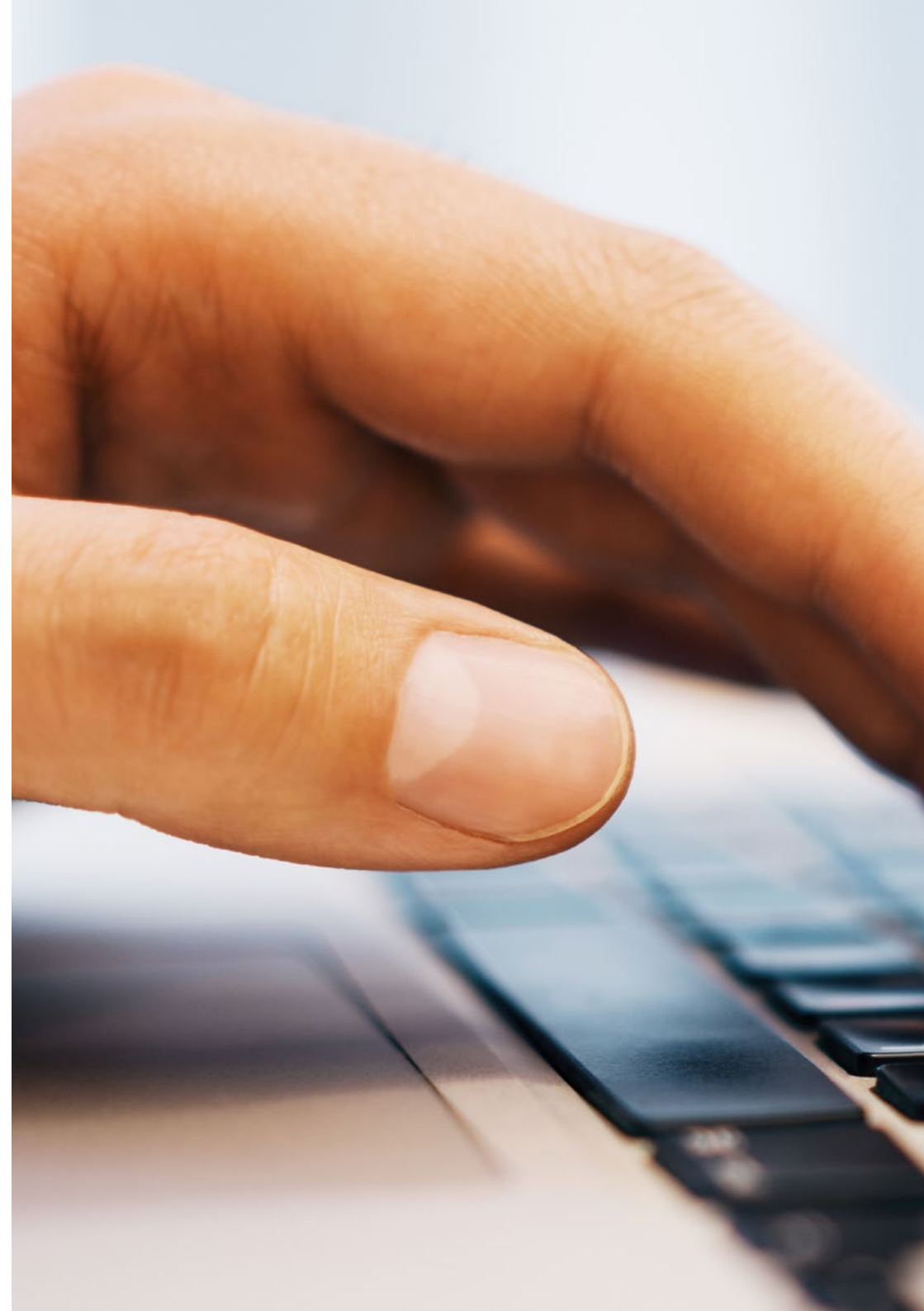


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You will gain the technical and conceptual skills needed to develop innovative and immersive frontend web experiences that take full advantage of Augmented and Virtual Reality capabilities”

Module 1. Augmented and Virtual Reality in Front-End Web Development

- 1.1. WebXR from the Front-End Web Development Approach
 - 1.1.1. WebXR and its API
 - 1.1.2. Augmented Reality (AR) and Virtual Reality (VR). Differences
 - 1.1.3. Compatibility and Hardware Requirements
- 1.2. Development of AR Experiences on the Web Frontend
 - 1.2.1. Use of Frameworks and Libraries for AR (A-Frame, AR.js)
 - 1.2.2. Integration of AR into Existing Web Applications
 - 1.2.3. Application and Design Best Practices
- 1.3. Creation of Interactive VR Environments in Front-End Web Development
 - 1.3.1. Design and Development of VR Environments
 - 1.3.2. Tools and Techniques for 3D Content Creation
 - 1.3.3. Immersive VR Applications in the Browser
- 1.4. Interface and User Experience in WebXR from a Front-End Approach.
 - 1.4.1. UI/UX Design for AR and VR Applications
 - 1.4.2. Usability and Accessibility
 - 1.4.3. Strategies for Navigation and Interaction in Immersive Environments
- 1.5. Performance Optimization for WebXR from the Front-End Approach
 - 1.5.1. Specific Optimization Techniques for AR/VR Experiences
 - 1.5.2. Efficient Handling of Graphics and Computational Resources
 - 1.5.3. Testing and Performance Monitoring on Different Devices
- 1.6. Integration of Sensors and Real-Time Data using Front-End Technologies
 - 1.6.1. Use of Device Sensors for Immersive Experiences
 - 1.6.2. Incorporating Real-Time Data into AR/VR Applications
 - 1.6.3. Practical Applications in Specific Industries
- 1.7. Mixed Reality and Hybrid Applications from a Front-End Approach
 - 1.7.1. Mixed Reality (MR) and Its Application in Front-End Web Development
 - 1.7.2. Development of Experiences that Combine Physical and Virtual Elements
 - 1.7.3. Emerging Practical Applications in Education, Training and Commerce



- 1.8. Accessibility in WebXR Applications from a Front-End Approach
 - 1.8.1. Challenges and Solutions for AR/VR Accessibility
 - 1.8.2. Strategies for Making AR/VR Content Accessible to All Users
 - 1.8.3. Standards and Guidelines for Inclusion in Immersive Experiences
- 1.9. WebXR and the Future of e-Commerce from a Front-End Approach
 - 1.9.1. AR/VR Applications in e-Commerce
 - 1.9.2. Improvements in the Shopping Experience and Product Visualization
 - 1.9.3. Future Trends and Consumer Expectations
- 1.10. Emerging Trends and Future of WebXR from a Front-End Approach
 - 1.10.1. Technological Advances and their Impact on AR/VR Development
 - 1.10.2. WebXR in Mobile and Wearable Devices
 - 1.10.3. Future Visions for AR/VR Integration on the Web



You will address the creation of user interfaces and user experience (UI/UX), tailored for WebXR applications, through an extensive library of innovative multimedia resources”

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.



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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.



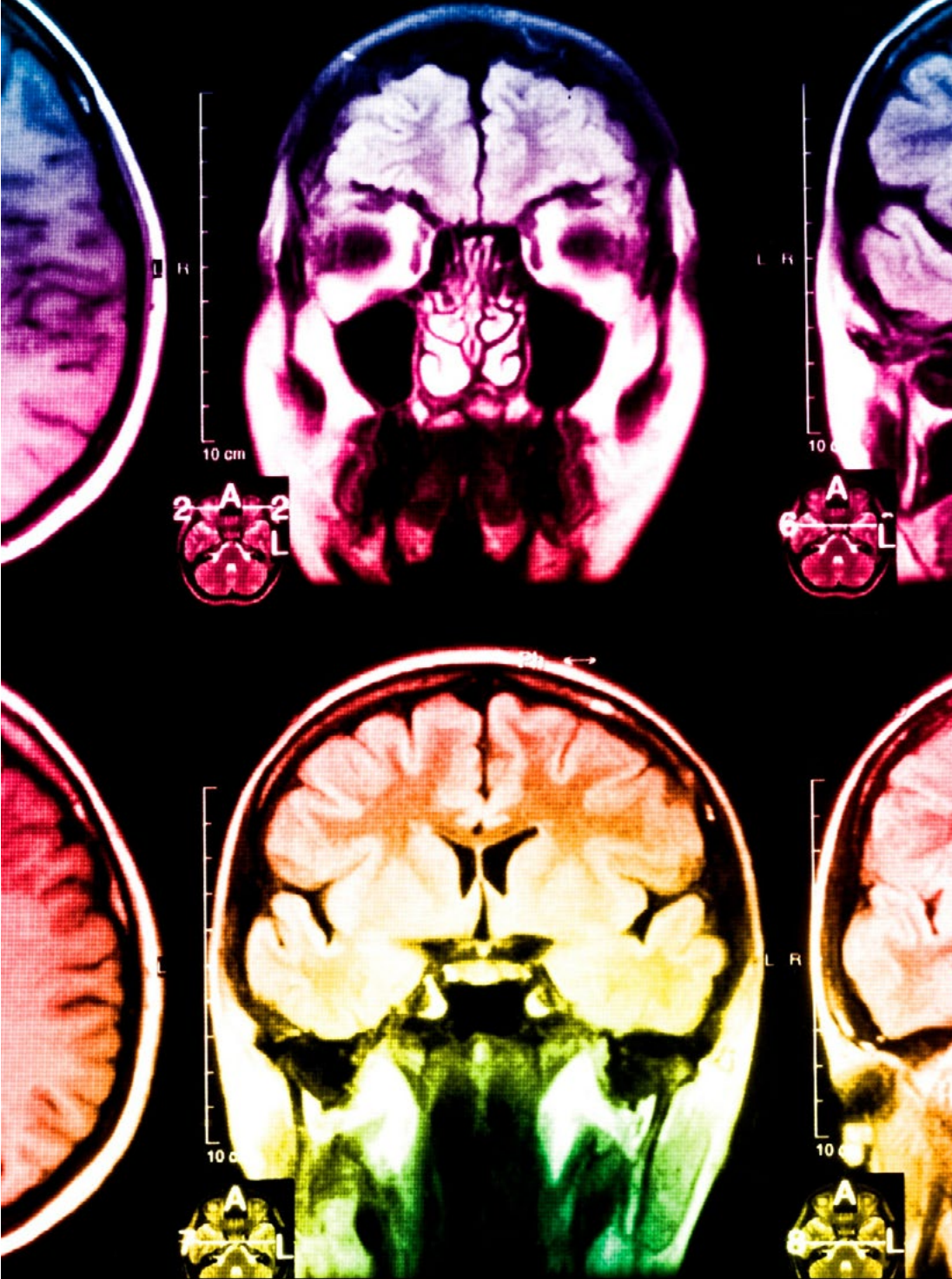
In our program, learning is not a linear process, but rather a spiral (learn, unlearn, forget, and re-learn). Therefore, we combine each of these elements concentrically.

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.



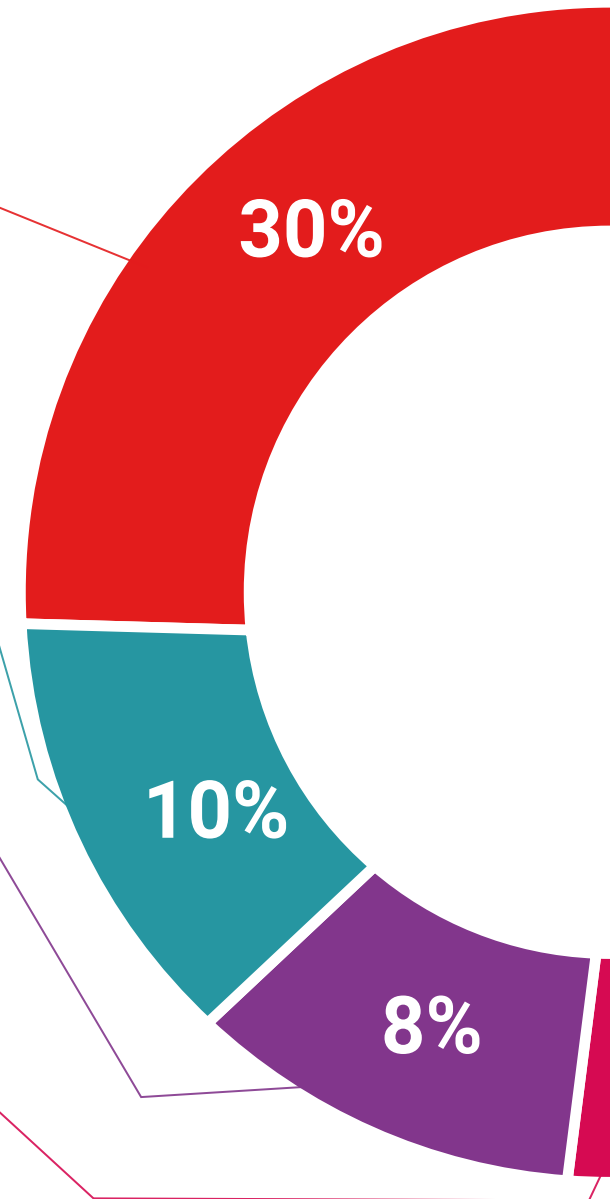
Practising Skills and Abilities

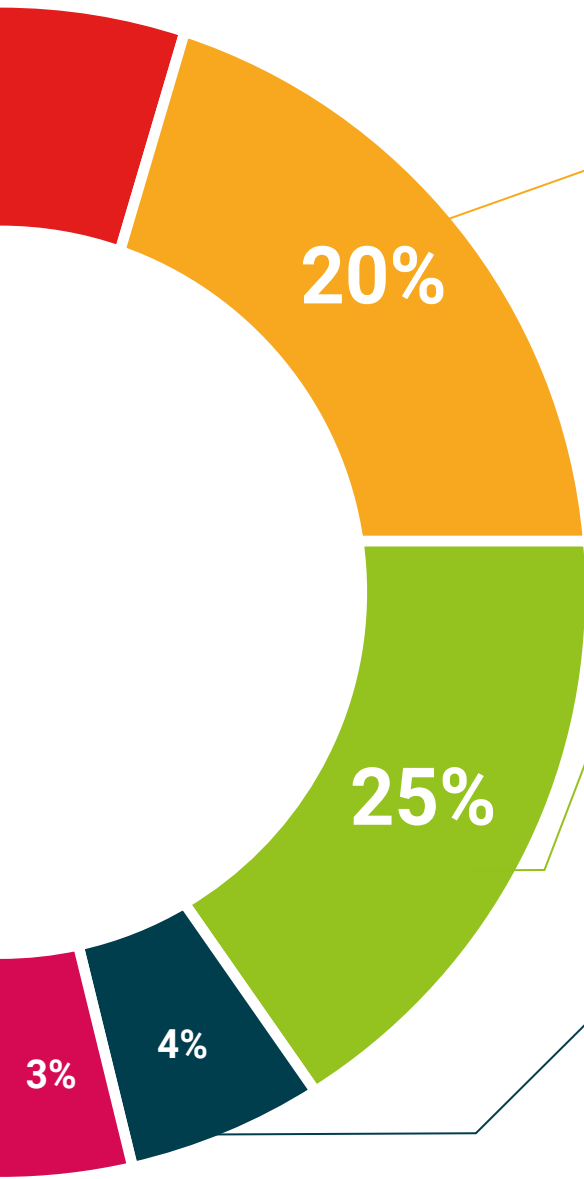
They will carry out activities to develop specific skills and abilities in each subject area. Exercises and activities to acquire and develop the skills and abilities that a specialist needs to develop in the context of the globalization that we are experiencing.



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 FAugmented and Virtual Reality 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.



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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 Augmented and Virtual Reality 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.

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Modality: **online**

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