Postgraduate Diploma

Data Management and Security in Web Applications

tech global university

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Postgraduate Diploma
Data Management and Security in Web Applications

- Modality: **online**
- Duration: **6 months**
- Certificate: **TECH Global University**
- Credits: **18 ECTS**
- Schedule: **at your own pace**
- Exams: **online**

Website: www.techtitute.com/us/information-technology/postgraduate-diploma/postgraduate-diploma-data-management-security-web-applications

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01

Introduction

Security breaches detected by *hackers* every year compromise data of numerous users and affect companies operating in the digital world. Given importance of security and compliance with current regulations, IT professionals must be aware of strategies to be developed to prevent and act against this type of threat, using all available tools. For this reason, TECH has developed this 100% online program that leads to an exhaustive learning about user management, web analysis techniques, application monetization, as well as integration of protection measures from architecture design process itself. A flexible academic proposal with the best didactic material.

Enroll now in a Postgraduate Diploma that will give you the opportunity to grow professionally in Data Management and Security in Web Applications"

Every year companies suffer millions of financial losses due to consequences of attacks on their web application availability, which compromise the integrity of their data. These facts also affect corporate reputation and force companies to hire the best IT professionals in this field.

Facing this reality, the specialization in Data Management and Security in Web Applications has increased in recent times. Given demand and relevance of this area, TECH has developed this Postgraduate Diploma of 450 teaching hours.

This way, over a 6-month period, students will achieve advanced learning about encryption and web certificates, appropriate tools for prevention, detection and mitigation of computer attacks or exhaustive regulations and recommendations in this field. The multimedia lessons, case study simulations and readings will make teaching even more attractive and dynamic, allowing you to extend information provided in this program even further.

In addition, thanks to the Relearning system, students will be able to assimilate in a progressive and much easier way. This way, it will reduce hours of study and memorization so frequent in other pedagogical methodologies.

The professional is therefore faced with an academic proposal with quality content and a flexible teaching method. The graduate only needs a digital device (cell phone, tablet or computer) with an Internet connection to view the syllabus hosted on the virtual platform at any time and place.

This **Postgraduate Diploma in Data Management and Security in Web Applications** contains the most complete and up-to-date program on the market. The most important features include:

- The development of case studies presented by experts in Software, Systems and Computing
- The graphic, schematic, and practical contents with which they are created, provide scientific and practical information on 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
- Availability to access content from any fixed or portable device with internet connection

In just 6 months you will be able to develop advanced architectures to process large amounts of data"

Distinguish yourself from other professionals through a program that will enhance your Web Application Data Management skills"

Do you want to obtain intensive learning, without spending long hours memorizing? Get it with TECH's Relearning system.

Explore from the comfort of your home improvement of user experience in advanced web applications.

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

Its multimedia content, developed with the latest educational technology, will allow the professional a situated and contextual learning, that is, a simulated environment that will provide an immersive education programmed to prepare for real situations.

The program design focuses on Problem-Based Learning, by means of which the professional must try to solve the different professional practice situations that are presented throughout the academic course. For this purpose, the student will be assisted by an innovative interactive video system created by renowned experts.

02

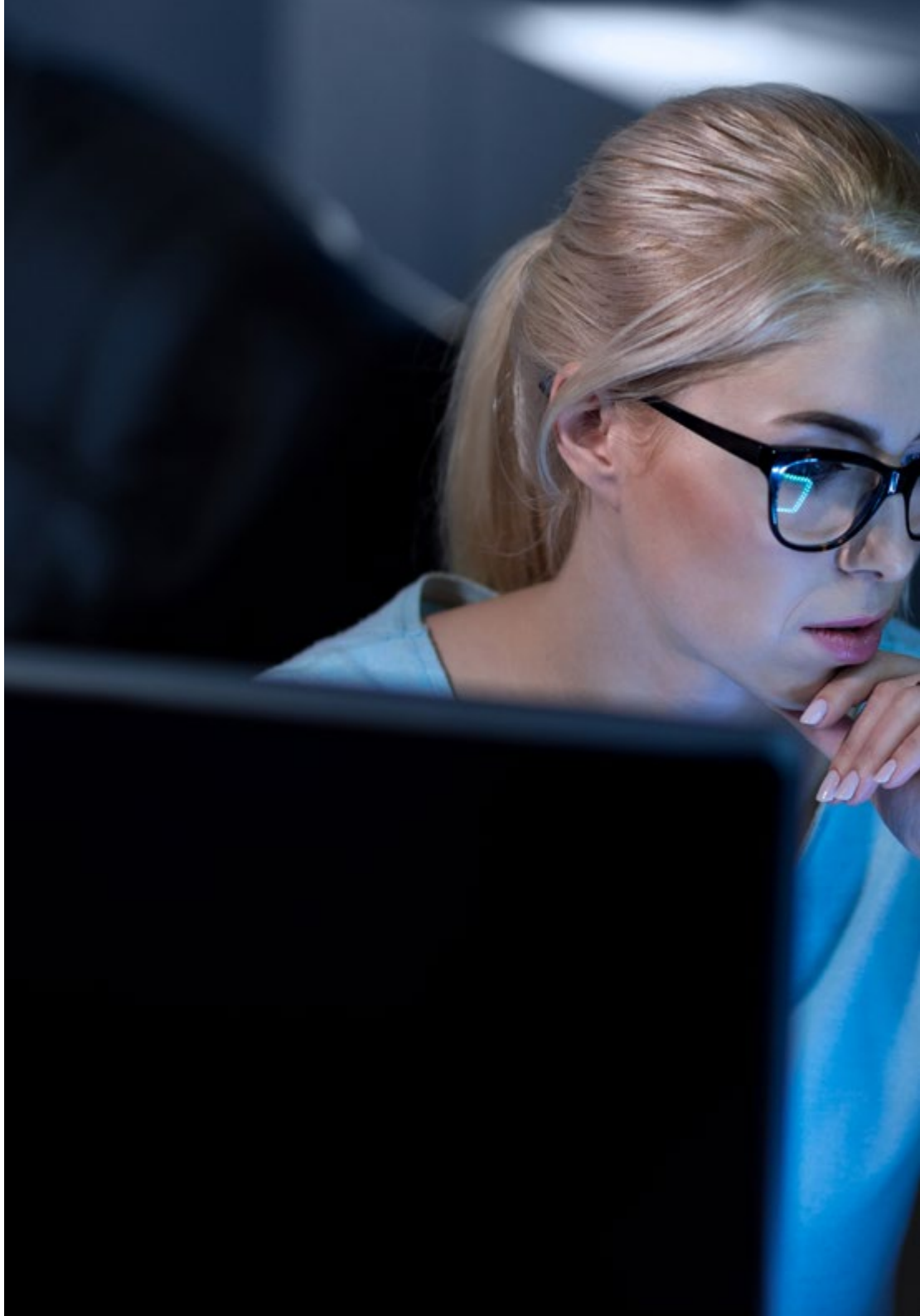
Objectives

This Certificate's Syllabus will lead computer scientist to become a true specialist in Data Management and Data Security in Web Applications. To achieve this goal with guarantees, TECH provides a syllabus with a theoretical perspective and a great practical application in the sector. This way, the graduate will have necessary knowledge and tools to successfully deal with any problem and provide web analysis techniques.

Examines through multimedia lessons the mechanisms and techniques to effectively design and implement Web Application Data Persistence"

General Objectives

- To generate specialized knowledge on advanced web architecture
- To address Back-end development of web application, reviewing available technologies, integration mechanisms such as APIs, message queues and events, and deployment and optimization processes
- To develop necessary steps for Front-end creation of web application, considering programming aspects as well as accessibility requirements, multi-language and multi-platform support
- To create personalized experiences, monitor and monetize web usage
- To consolidate good application design and development practices with project management that favors continuous iteration, integration and deployment
- To analyze in depth aspects related to web application security, with special focus on the most common attacks and corresponding prevention, detection and mitigation mechanisms
- To review safety recommendations and regulations
- To address security as one of the pillars of advanced web architectures
- To establish cloud computing as a booming alternative for development and deployment of web applications
- To review key features and vendors, planning migration scenarios and incorporating new roles and processes in project management



Specific Objectives

Module 1. Design and data persistence implementation

- To examine various options for persisting web application data
- To analyze relational and non-relational database usage
- To develop other types of databases
- To generate specialized knowledge in use cases and tools of file storage
- To establish motivations and solutions for search engines
- To develop advanced architectures for processing large amounts of data

Module 2. Web Application User Management

- To examine registration, authentication and authorization processes for web users
- To set up user role and credential management
- To identify mechanisms to manage user's session
- To develop systems available for communication with users
- To deepen in regulation and good practices of data protection

Module 3. Web Application Security

- To review data encryption mechanisms and web certificates
- To identify, prevent and mitigate main types of web attacks
- To determine bot types and existing protection mechanisms
- To examine main web security tools and services
- To establish security recommendations and regulations in web industry

03

Course Management

The faculty that makes up this Postgraduate Diploma is distinguished by having extensive experience in technological sector, especially involved in software development projects, systems and computing. A background that will allow students to deepen into latest trends in Data Management and Data Security in Web Applications based on the most advanced and current knowledge of this teaching team. In addition, thanks to its proximity, the graduate will be able to resolve any doubts they may have about content during this Certificate course.

Get advanced learning on Application Data Security from professionals versed in this area and with extensive experience in leading companies"

Management

Dr. Pantaleón García del Valle, Eduardo

- Solutions Architect in Amazon Web Services (AWS)
- Solutions Architect at Liferay, Inc
- Technical Manager at Jungheinrich AG
- Senior Software Engineer and Team Manager at Liferay
- Project Manager at Protecmedia
- Organization and delivery of online technical webinars as part of the AWS Customer Proficiency Plan
- Member of the Alumni Mentoring Program of Universidad Carlos III of Madrid, for the professional counseling of students and recent graduates
- Graduated in Telecommunication Engineering from Universidad Carlos III of Madrid
- D. in Software, Systems and Computing from the Universidad Politécnica of Madrid
- Master's Degree in and Computer Systems by the National University of Distance Education.- UNED
- Executive Data Science Specialization by the Universidad Johns Hopkins

Professors

Dr. López Rodríguez, Armando

- Head of the Technical Advisory Area in the Office of the President of Puertos del Estado
- Head of Strategic Planning Area in Puertos del Estado
- Project Manager at Puertos del Estado
- Head of Resources and Information and Communications Technology Area at Puertos del Estado
- Head of the Development Area in Puertos del Estado
- Head of Corporate Relations Department at Puertos del Estado
- Head of Strategic Planning Area in Puertos del Estado
- Associate Professor of the School of Industrial Organization
- AENOR Associate Professor
- Associate Professor at UBT Lab
- Telecommunications Engineer from Universidad Politécnica de Madrid
- Degree in History from the Universidad Nacional de Educación a Distancia (UNED)
- D. in History from the Universidad Nacional de Educación a Distancia (UNED)
- Professional Master's Degree in Advanced Methods and Techniques of Historical, Artistic and Geographical Research by the Universidad Nacional de Educación a Distancia (UNED)
- Management Development Program (PDD) by the IESE Business School of the University of Navarra

Ms. Becerra Varela, Montserrat

- IT Engineer
- Supervisor of installations and configuration of servers and LAN and/or WIFI networks
- Online teacher in various vocational education programs
- Computer Engineering Degree from the University of Deusto
- Technical Engineer in Computer Management from the University of Deusto
- Professional Master's Degree in Occupational Risk Prevention (three specialties): Occupational Safety, Industrial Hygiene and Ergonomics and Applied Psychosociology)
- Postgraduate Certificate in Design, Creation and Tutoring of E-Learning Courses by Anova (Fundación CIDET)

A unique, key, and decisive educational experience to boost your professional development"

04

Structure and Content

This program's academic schedule includes 3 modules that will lead students to achieve advanced learning around design and implementation of data persistence, web application user management and security. All this is complemented by innovative pedagogical tools in which TECH has used latest technology applied to teaching at the highest level. A unique opportunity that only the world's largest digital university can offer.

This Postgraduate Diploma's Virtual Library provides you with a large amount of didactic material, accessible at any time of the day"

Module 1. Design and data persistence implementation

1.1. Data storage solutions
- 1.1.1. CRUD, ACID, OLTP, OLAP
- 1.1.2. Data Modeling
- 1.1.3. Data storage system classifications

1.2. Relational Databases
- 1.2.1. Case Uses
- 1.2.2. Relational database operations
- 1.2.3. Available solutions

1.3. Non-- Relational Databases
- 1.3.1. Key-Value Databases
- 1.3.2. Objects-Oriented Databases
- 1.3.3. Graph-Oriented Databases

1.4. Other database systemss
- 1.4.1. In-memory databases
- 1.4.2. Time-series databases
- 1.4.3. Distributed Databases

1.5. File system storage
- 1.5.1. Case Uses
- 1.5.2. File system operations
- 1.5.3. Available solutions

1.6. Data cache mechanisms
- 1.6.1. Client-side Cache
- 1.6.2. Network cache (CDN)
- 1.6.3. Servers-side Cache

1.7. Search Engines
- 1.7.1. Case Uses
- 1.7.2. Indexing and searching
- 1.7.3. Available solutions

1.8. Data access mechanisms
- 1.8.1. Data Access Object (DAO) and Data Transfer Object (DTO)
- 1.8.2. Access Control
- 1.8.3. Drivers

1.9. Big Data Architecture
- 1.9.1. Extraction, Loading and Transformation (ETL)
- 1.9.2. Data warehouses, datalakes and data Lakehouses
- 1.9.3. Available solutions

1.10. Criteria for storage selection
- 1.10.1. Functional requirements
- 1.10.2. Non-Functional Requirements
- 1.10.3. Other key aspects

Module 2. Web Application User Management

2.1. User registration and authentication
- 2.1.1. Identity validation and MFA
- 2.1.2. Authentication Protocols OAuth 2.0, SAML, LDAP, RADIUS
- 2.1.3. Identity providers

2.2. User profiles, roles and authorization
- 2.2.1. Authorization mechanisms
- 2.2.2. Role Based Access (RBAC)
- 2.2.3. Principle of minimum privilege

2.3. Credentials management
- 2.3.1. Encryption and secure storage of passwords
- 2.3.2. Modification and revocation of credentials
- 2.3.3. Password tools and services

2.4. User session Management
- 2.4.1. Session ID, properties and life cycle
- 2.4.2. Session control implementations
- 2.4.3. Cookies and Web Storage

2.5. User data isolation
- 2.5.1. Single-tenant and multi-tenant systems
- 2.5.2. Physical data isolation (silos)
- 2.5.3. Logic data isolation (silos)

2.6. Notifications and messaging
- 2.6.1. Application notifications
- 2.6.2. Notification services: email, SMS, Push notifications
- 2.6.3. Subscription management

2.7. Personalized user experiences
- 2.7.1. User segmentation
- 2.7.2. Recommendation mechanisms
- 2.7.3. A/B testing

2.8. User monitoring and analytics
- 2.8.1. Forms of analysis: Behavior, Customer Journey, Funnel Analysis
- 2.8.2. Web monitoring and analysis tools: Google Analytics and others
- 2.8.3. Multi-platform tracking: email, mobile devices

2.9. Web application monetization
- 2.9.1. Search optimization
- 2.9.2. Digital Marketing Campaigns
- 2.9.3. E-Commerce and Payment Gateways

2.10. Protection of Personal Data
- 2.10.1. Data protection area
- 2.10.2. International data protection regulation
- 2.10.3. Recommendations and Good Practices

Module 3. Web Application Security

3.1. Secure web architecture design
- 3.1.1. Client security
- 3.1.2. Network Security
- 3.1.3. Server security

3.2. Encryption
- 3.2.1. Encryption techniques
- 3.2.2. In-transit encryption
- 3.2.3. Encryption at rest

3.3. Web Certificates
- 3.3.1. Types of web certificates
- 3.3.2. Web certificate generation and storage
- 3.3.3. Certification Authorities

3.4. Major web attacks
- 3.4.1. Open Worldwide Application Security Project (OWASP) Top 10
- 3.4.2. Injection attacks
- 3.4.3. Denial of Service Attacks

3.5. Other attack types
- 3.5.1. Software attacks: malware, ransomware
- 3.5.2. Phishing and social engineering attacks: phishing, spoofing
- 3.5.3. Vulnerability exploitation: supply chain, zero-day exploit

3.6. Bot protection
- 3.6.1. Bot types
- 3.6.2. Detection algorithms
- 3.6.3. Bot challenges: CAPTCHA, image recognition

3.7. Web security tools and services
- 3.7.1. Prevention
- 3.7.2. Detection
- 3.7.3. Mitigation

3.8. International Web Industry Safety Regulations and Recommendations
- 3.8.1. ISO 27001
- 3.8.2. Regional regulations: NIS2, NIST
- 3.8.3. Regulations by industry: PCI, HIPAA

3.9. Security Policies
- 3.9.1. Security roles in development teams
- 3.9.2. Secure development practices
- 3.9.3. Incident response: training and automation

3.10. Security Tests
- 3.10.1. Vulnerability Analysis
- 3.10.2. Penetration Test
- 3.10.3. Security Audits

Delve into the best educational material on encryption and web certificates to ensure the protection of sensitive data"

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

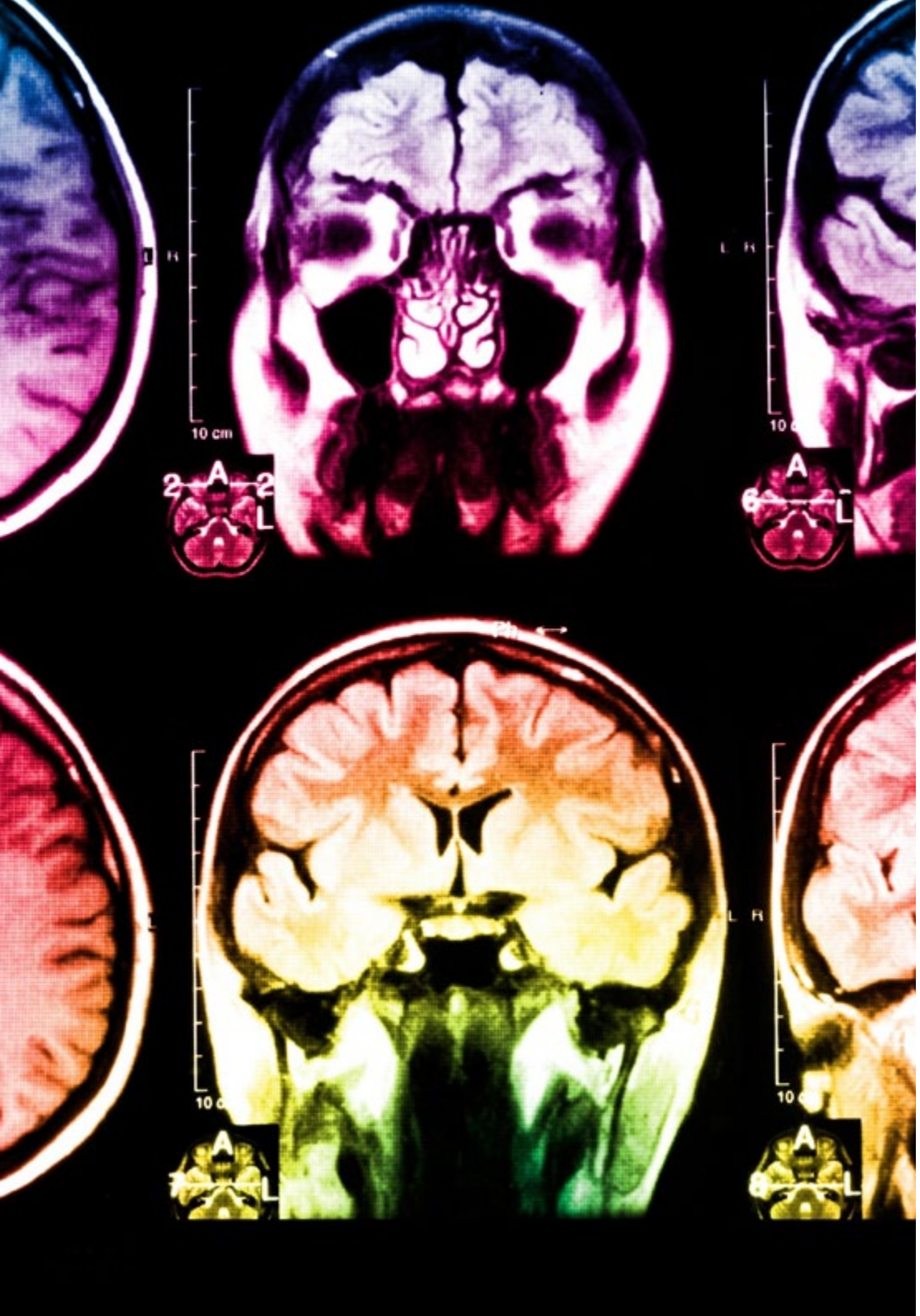
TECH effectively combines the Case Study methodology with a 100% online learning system based on repetition, which combines different teaching elements in each lesson.

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.

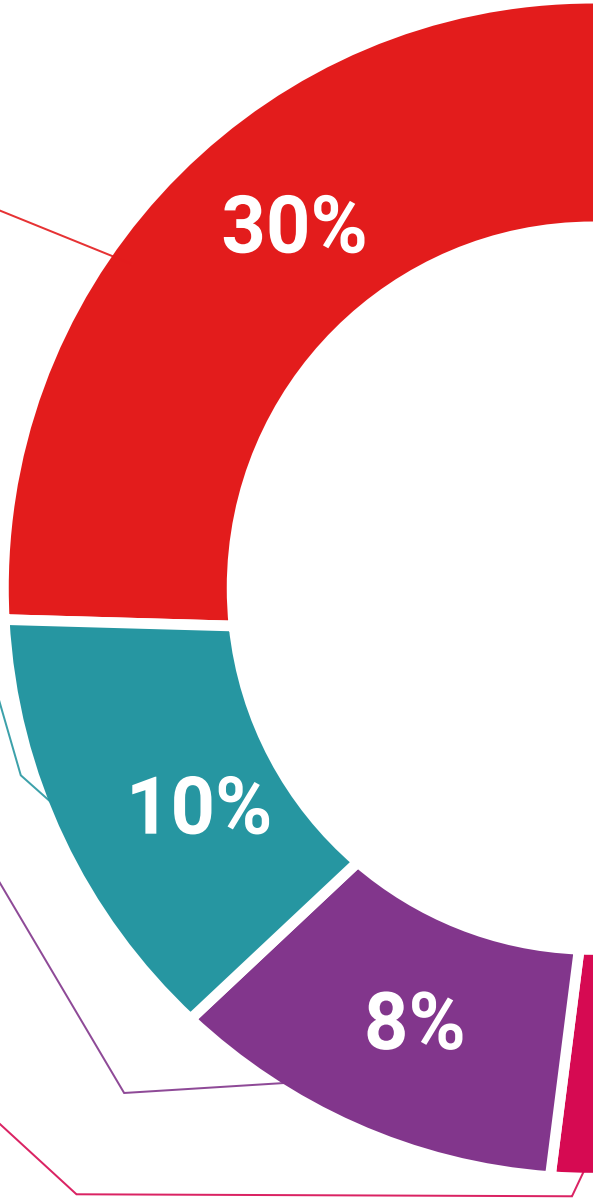
Learning from an Expert strengthens knowledge and memory, and generates confidence in future difficult decisions.

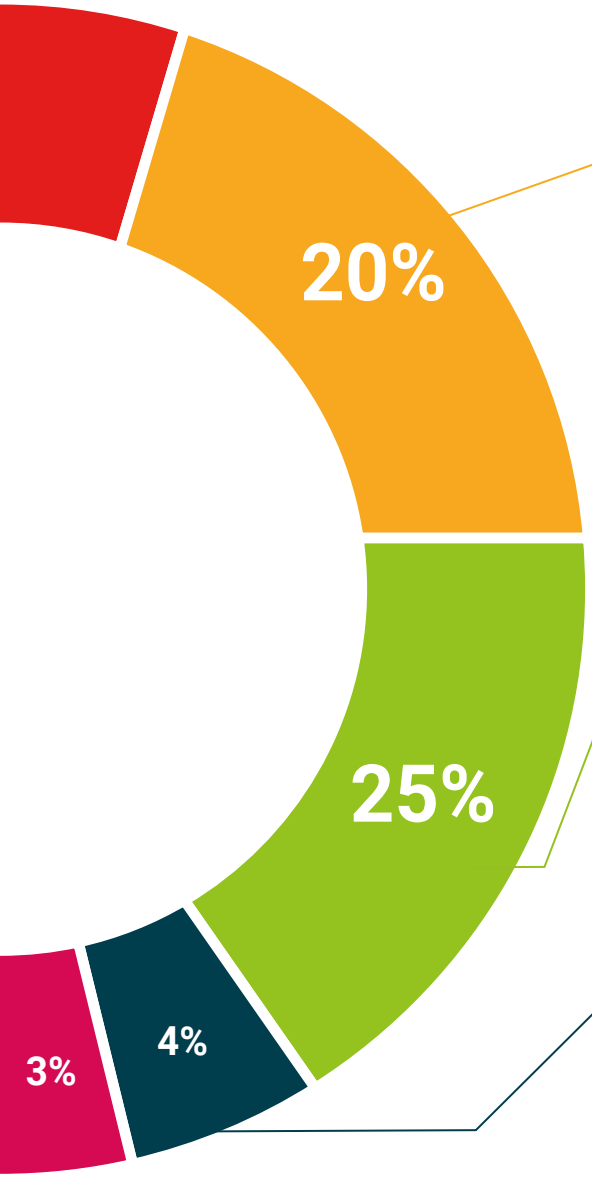
Practising Skills and Abilities

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 Diploma in Data Management and Security in Web Applications guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Diploma issued by TECH Global University.

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

This program will allow you to obtain your **Postgraduate Diploma in Data Management and Security in Web Applications** 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** title 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 Diploma in Data Management and Security in Web Applications**

Modality: **online**

Duration: **6 months**

Accreditation: **18 ECTS**


tech global university

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

Postgraduate Diploma in Data Management and Security in Web Applications

This is a program of 450 hours of duration equivalent to 18 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
Rector

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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