# Postgraduate Certificate

## Modern Cryptography with ChatGPT Data Protection Assistance

tech global university

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# Postgraduate Certificate
## Modern Cryptography with ChatGPT Data Protection Assistance

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

Website: **www.techtitute.com/us/artificial-intelligence/postgraduate-certificate/modern-cryptography-chatgpt-data-protection-assistance**

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01

# Introduction to the Program

Protecting sensitive data has become a critical priority for organizations of all sizes. Modern cryptography, with its advanced encryption algorithms and digital signatures, has been an essential tool in this effort. However, the increasing complexity of cyber-attacks requires innovative solutions. In response, the use of Artificial Intelligence, such as ChatGPT, has emerged as a powerful assistant to automate and optimize cryptographic processes, improving security and efficiency in data protection. Faced with this, specialists need to master the latest techniques to improve data protection. Therefore, TECH launches an innovative university program focused on Modern Cryptography with ChatGPT Data Protection Assistance.

*Through this 100% online Postgraduate Certificate, you will optimize security in digital platforms using cryptographic techniques and ChatGPT”*

According to a new study conducted by the World Organization of the United Nations, last year saw data breaches affecting more than 4.1 billion records. This growth in security breaches has underscored the need to strengthen data protection measures using Modern Cryptography. However, the increasing complexity of threats and traditional encryption methods require more dynamic solutions. Artificial Intelligence, particularly ChatGPT, has begun to play a crucial role in optimizing cryptographic algorithms and automating key management and security processes, improving speed and efficiency in data protection.

In this context, TECH has created an exclusive Postgraduate Certificate in Modern Cryptography with ChatGPT Data Protection Assistance Designed by experts in this field, the curriculum will delve into issues ranging from the generation of security recommendations with Artificial Intelligence or simulation for the study of post-quantum cryptography to the development of an encryption system based on generative models. In this way, graduates will develop advanced skills to design and implement state-of-the-art cryptographic security solutions, using Artificial Intelligence to optimize encryption processes and protect sensitive data.

On the other hand, this university program is based entirely on a 100% online modality, making it easier for specialists to plan their own study schedules to experience a fully efficient update. In addition, professionals will enjoy a wide variety of multimedia resources designed to promote dynamic and natural learning. To access the Virtual Campus, the only thing students will need is a device with Internet access (including their own cell phone). They will also be supported at all times by an experienced teaching staff, who will resolve all the doubts that may arise during their study plan.

This **Postgraduate Certificate in Modern Cryptography with ChatGPT Data Protection Assistance** contains the most complete and updated educational program on the market. Its most notable features are:

- The development of case studies presented by prestigious experts in cryptography, cybersecurity and Artificial Intelligence
- The graphic, schematic and eminently practical contents with which it is conceived gather scientific and practical information on those disciplines that are indispensable 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 implement algorithms such as AES and RSA, ensuring security in complex digital environments"*

*You will specialize in the use of ChatGPT to optimize cryptographic processes, detect anomalies and generate innovative solutions in data protection"*

*You will delve into the applications of Cryptography in Blockchain, ensuring the integrity and reliability of digital transactions.*

*Thanks to TECH Relearning you will be able to assimilate the essential concepts in a fast, natural and accurate way.*

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 course. For this purpose, students will be assisted by an innovative interactive video system created by renowned experts.

02

# Why Study at TECH?

TECH is the world's largest online university. With an impressive catalog of more than 14,000 university programs, available in 11 languages, it is positioned as a leader in employability, with a 99% job placement rate. In addition, it has a huge faculty of more than 6,000 professors of the highest international prestige.

*Study at the largest online university in the world and ensure your professional success. The future begins at TECH”*

### The world's best online university, according to FORBES

The prestigious Forbes magazine, specialized in business and finance, has highlighted TECH as "the best online university in the world" This is what they have recently stated in an article in their digital edition in which they echo the success story of this institution, "thanks to the academic offer it provides, the selection of its teaching staff, and an innovative learning method oriented to form the professionals of the future"

### The best top international faculty

TECH's faculty is made up of more than 6,000 professors of the highest international prestige. Professors, researchers and top executives of multinational companies, including Isaiah Covington, performance coach of the Boston Celtics; Magda Romanska, principal investigator at Harvard MetaLAB; Ignacio Wistumba, chairman of the department of translational molecular pathology at MD Anderson Cancer Center; and D.W. Pine, creative director of TIME magazine, among others.

### The world's largest online university

TECH is the world's largest online university. We are the largest educational institution, with the best and widest digital educational catalog, one hundred percent online and covering most areas of knowledge. We offer the largest selection of our own degrees and accredited online undergraduate and postgraduate degrees. In total, more than 14,000 university programs, in ten different languages, making us the largest educational institution in the world.

### The most complete syllabuses on the university scene

TECH offers the most complete syllabuses on the university scene, with programs that cover fundamental concepts and, at the same time, the main scientific advances in their specific scientific areas. In addition, these programs are continuously updated to guarantee students the academic vanguard and the most demanded professional skills. and the most in-demand professional competencies. In this way, the university's qualifications provide its graduates with a significant advantage to propel their careers to success.

### A unique learning method

TECH is the first university to use Relearning in all its programs. This is the best online learning methodology, accredited with international teaching quality certifications, provided by prestigious educational agencies. In addition, this innovative academic model is complemented by the "Case Method", thereby configuring a unique online teaching strategy. Innovative teaching resources are also implemented, including detailed videos, infographics and interactive summaries.

### The official online university of the NBA

TECH is the official online university of the NBA. Thanks to our agreement with the biggest league in basketball, we offer our students exclusive university programs, as well as a wide variety of educational resources focused on the business of the league and other areas of the sports industry. Each program is made up of a uniquely designed syllabus and features exceptional guest hosts: professionals with a distinguished sports background who will offer their expertise on the most relevant topics.

### Leaders in employability

TECH has become the leading university in employability. Ninety-nine percent of its students obtain jobs in the academic field they have studied within one year of completing any of the university's programs. A similar number achieve immediate career enhancement. All this thanks to a study methodology that bases its effectiveness on the acquisition of practical skills, which are absolutely necessary for professional development.

### Google Premier Partner

The American technology giant has awarded TECH the Google Premier Partner badge. This award, which is only available to 3% of the world's companies, highlights the efficient, flexible and tailored experience that this university provides to students. The recognition not only accredits the maximum rigor, performance and investment in TECH's digital infrastructures, but also places this university as one of the world's leading technology companies.

### The top-rated university by its students

Students have positioned TECH as the world's top-rated university on the main review websites, with a highest rating of 4.9 out of 5, obtained from more than 1,000 reviews. These results consolidate TECH as the benchmark university institution at an international level, reflecting the excellence and positive impact of its educational model.

03

# Syllabus

The didactic materials that constitute this Postgraduate Certificate have been elaborated by referents in Modern Cryptography with ChatGPT Data Protection Assistance. Therefore, the curriculum will analyze issues ranging from the fundamentals of advanced encryption or different techniques for data encryption to the use of blockchain methods for the verification of secure transactions. In this way, students will develop advanced skills in the implementation of robust cryptographic algorithms, improving the security of data protection systems.

*You will implement advanced cryptographic solutions, ensuring the confidentiality and integrity of data in digital systems"*

## **Module 1.** Modern Cryptography with ChatGPT Data Protection Assistance

1.1. Basic Principles of Cryptography with Artificial Intelligence Applications
- 1.1.1. Fundamental Concepts of Cryptography: Confidentiality and Authenticity
- 1.1.2. Main Cryptographic Algorithms and Their Current Relevance
- 1.1.3. Role of Artificial Intelligence in the Modernization of Cryptography

1.2. ChatGPT in the Teaching and Practice of Symmetric and Asymmetric Cryptography
- 1.2.1. Introduction to Symmetric and Asymmetric Cryptography
- 1.2.2. Comparison between Symmetric and Asymmetric Encryption
- 1.2.3. Use of ChatGPT in Learning Cryptographic Methods

1.3. Advanced Encryption (AES, RSA) and AI-Generated Recommendations
- 1.3.1. Fundamentals of AES and RSA Algorithms in Data Encryption
- 1.3.2. Strengths and Weaknesses of These Algorithms in the Current Context
- 1.3.3. Generation of Security Recommendations in Advanced Cryptography with Artificial Intelligence

1.4. AI in Key Management and Authentication
- 1.4.1. Principles of Cryptographic Key Management
- 1.4.2. Importance of Secure Key Authentication
- 1.4.3. Application of Artificial Intelligence to Optimize Key Management and Authentication Processes

1.5. Hashing Algorithms and ChatGPT in Integrity Assessment
- 1.5.1. Basic Concepts and Applications of Hashing Algorithms
- 1.5.2. Hashing Functions in Data Integrity Verification
- 1.5.3. Data Integrity Analysis and Verification with the Help of ChatGPT

1.6. ChatGPT in the Detection of Anomalous Encryption Patterns
- 1.6.1. Introduction to Anomalous Pattern Detection in Cryptography
- 1.6.2. ChatGPT's Ability to Identify Irregularities in Cryptographic Data
- 1.6.3. Limitations of Language Models in Anomalous Cipher Detection

1.7. Introduction to Post-Quantum Cryptography with Artificial Intelligence Simulations
- 1.7.1. Fundamentals of Post-Quantum Cryptography and Its Importance
- 1.7.2. Main Post-Quantum Algorithms in Research
- 1.7.3. Use of AI in Simulations for the Study of Post-Quantum Cryptography

1.8. Blockchain and ChatGPT in the Verification of Secure Transactions
- 1.8.1. Basic Concepts of Blockchain and Its Security Structure
- 1.8.2. Role of Cryptography in Blockchain Integrity
- 1.8.3. Application of ChatGPT to Explain and Analyze Secure Transactions

1.9. Privacy Protection and Federated Learning
- 1.9.1. Definition and Principles of Federated Learning
- 1.9.2. Importance of Privacy in Decentralized Learning
- 1.9.3. Benefits and Challenges of Federated Learning for Data Security

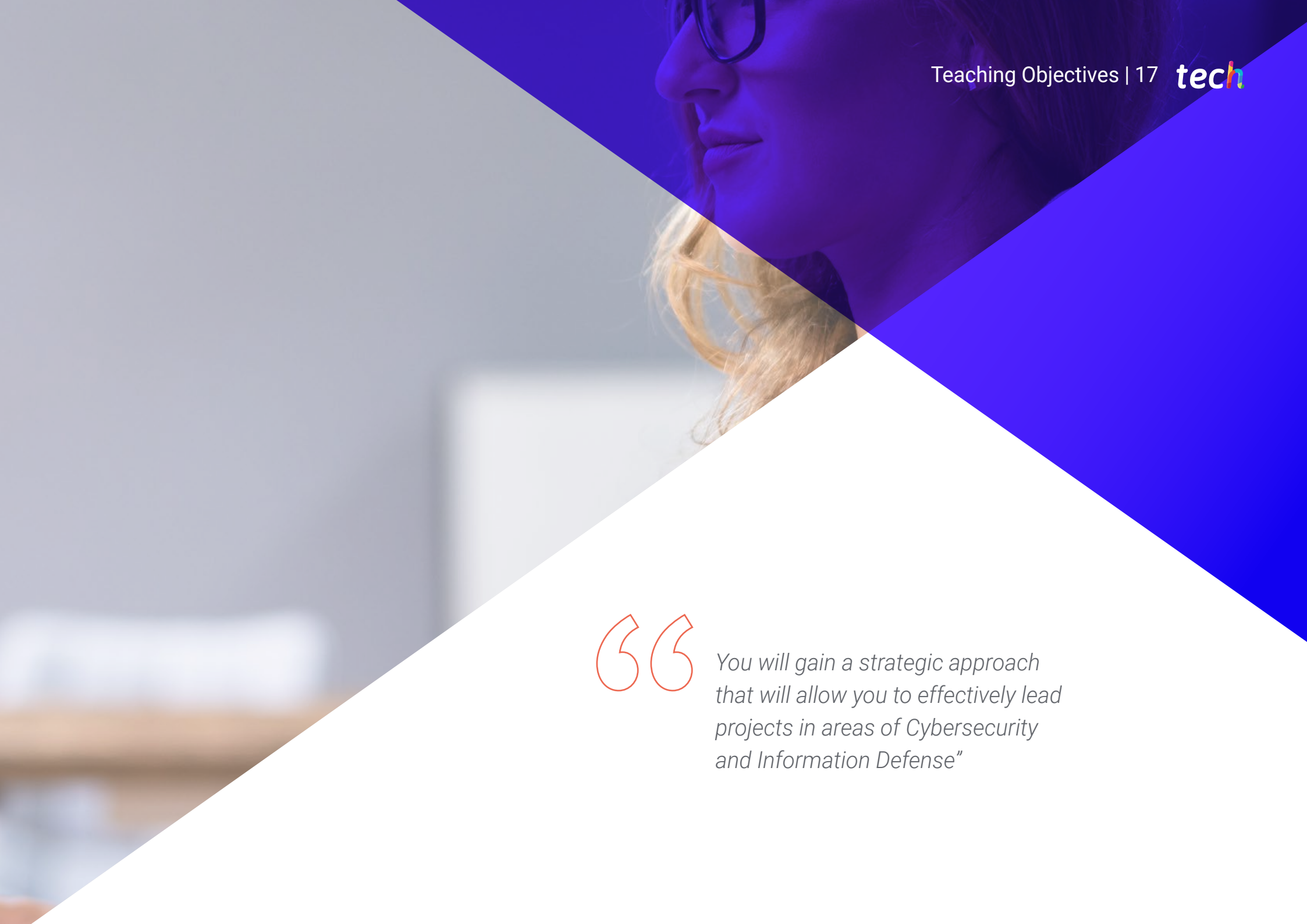
1.10. Development of a Generative Artificial Intelligence Based Encryption System
- 1.10.1. Basic Principles in the Creation of Encryption Systems
- 1.10.2. Advantages of Generative Artificial Intelligence in the Design of Encryption Systems
- 1.10.3. Components and Requirements of an AI-Assisted Encryption System

*You will have access to a wide range of multimedia resources such as explanatory videos or multimedia summaries, allowing for more enjoyable learning"*

04

# Teaching Objectives

Through this comprehensive Postgraduate Certificate, experts will develop the necessary skills to design, analyze and implement advanced cryptographic algorithms, manage keys securely and use Artificial Intelligence tools to optimize processes. In addition, they will be able to analyze and design adaptive systems, address emerging challenges such as post-quantum cryptography and apply innovative solutions in constantly evolving technological environments.



*You will gain a strategic approach that will allow you to effectively lead projects in areas of Cybersecurity and Information Defense”*

## General Objectives

- Master the fundamentals of modern cryptography, including confidentiality, authenticity and integrity of data
- Analyze the main cryptographic algorithms, such as AES and RSA, and evaluate their effectiveness in current and future contexts
- Incorporate Artificial Intelligence tools to optimize encryption and authentication processes
- Identify anomalous patterns in encrypted data using advanced models such as ChatGPT
- Explore the principles and applications of symmetric and asymmetric cryptography in practical scenarios
- Evaluate the impact of post-quantum cryptography and its emerging algorithms on digital security
- Design data protection strategies based on blockchain technologies and decentralized systems
- Apply advanced methods for secure cryptographic key management and authentication
- Use hashing functions to verify data integrity in various technological environments
- Develop innovative encryption solutions using generative artificial intelligence

## Specific Objectives

- Master the basics of advanced cryptography, including algorithms such as AES, RSA and post-quantum algorithms
- Use ChatGPT to teach, practice and optimize cryptographic methods
- Design and manage AI-assisted encryption systems, ensuring data privacy and authenticity
- Evaluate the resilience of cryptographic algorithms against simulated attack scenarios with generative Artificial Intelligence
- Develop optimized encryption and decryption strategies to protect critical infrastructures and sensitive data
- Implement post-quantum cryptography solutions to mitigate future risks in AI-based systems

*You will promote the use of ChatGPT as an assistant in the automation of cryptographic processes"*

05

# Study Methodology

TECH is the world's first university to combine the **case study** methodology with **Relearning**, a 100% online learning system based on guided repetition.

This disruptive pedagogical strategy has been conceived to offer professionals the opportunity to update their knowledge and develop their skills in an intensive and rigorous way. A learning model that places students at the center of the educational process giving them the leading role, adapting to their needs and leaving aside more conventional methodologies.

*TECH will prepare you to face new challenges in uncertain environments and achieve success in your career"*

## The student: the priority of all TECH programs

In TECH's study methodology, the student is the main protagonist.
The teaching tools of each program have been selected taking into account the demands of time, availability and academic rigor that, today, not only students demand but also the most competitive positions in the market.

With TECH's asynchronous educational model, it is students who choose the time they dedicate to study, how they decide to establish their routines, and all this from the comfort of the electronic device of their choice. The student will not have to participate in live classes, which in many cases they will not be able to attend. The learning activities will be done when it is convenient for them. They can always decide when and from where they want to study.

*"At TECH you will NOT have live classes (which you might not be able to attend)"*

## The most comprehensive study plans at the international level

TECH is distinguished by offering the most complete academic itineraries on the university scene. This comprehensiveness is achieved through the creation of syllabi that not only cover the essential knowledge, but also the most recent innovations in each area.

By being constantly up to date, these programs allow students to keep up with market changes and acquire the skills most valued by employers. In this way, those who complete their studies at TECH receive a comprehensive education that provides them with a notable competitive advantage to further their careers.

And what's more, they will be able to do so from any device, pc, tablet or smartphone.

> *TECH's model is asynchronous, so it allows you to study with your pc, tablet or your smartphone wherever you want, whenever you want and for as long as you want"*

## Case Studies and Case Method

The case method has been the learning system most used by the world's best business schools. Developed in 1912 so that law students would not only learn the law based on theoretical content, its function was also to present them with real complex situations. In this way, they could make informed decisions and value judgments about how to resolve them. In 1924, Harvard adopted it as a standard teaching method.

With this teaching model, it is students themselves who build their professional competence through strategies such as Learning by Doing or Design Thinking, used by other renowned institutions such as Yale or Stanford.

This action-oriented method will be applied throughout the entire academic itinerary that the student undertakes with TECH. Students will be confronted with multiple real-life situations and will have to integrate knowledge, research, discuss and defend their ideas and decisions. All this with the premise of answering the question of how they would act when facing specific events of complexity in their daily work.

## Relearning Methodology

At TECH, case studies are enhanced with the best 100% online teaching method: Relearning.

This method breaks with traditional teaching techniques to put the student at the center of the equation, providing the best content in different formats. In this way, it manages to review and reiterate the key concepts of each subject and learn to apply them in a real context.

In the same line, and according to multiple scientific researches, reiteration is the best way to learn. For this reason, TECH offers between 8 and 16 repetitions of each key concept within the same lesson, presented in a different way, with the objective of ensuring that the knowledge is completely consolidated during the study process.

*Relearning will allow you to learn with less effort and better performance, involving you more in your specialization, developing a critical mindset, defending arguments, and contrasting opinions: a direct equation to success.*

## A 100% online Virtual Campus with the best teaching resources

In order to apply its methodology effectively, TECH focuses on providing graduates with teaching materials in different formats: texts, interactive videos, illustrations and knowledge maps, among others. All of them are designed by qualified teachers who focus their work on combining real cases with the resolution of complex situations through simulation, the study of contexts applied to each professional career and learning based on repetition, through audios, presentations, animations, images, etc.

The latest scientific evidence in the field of Neuroscience points to the importance of taking into account the place and context where the content is accessed before starting a new learning process. Being able to adjust these variables in a personalized way helps people to remember and store knowledge in the hippocampus to retain it in the long term. This is a model called Neurocognitive context-dependent e-learning that is consciously applied in this university qualification.

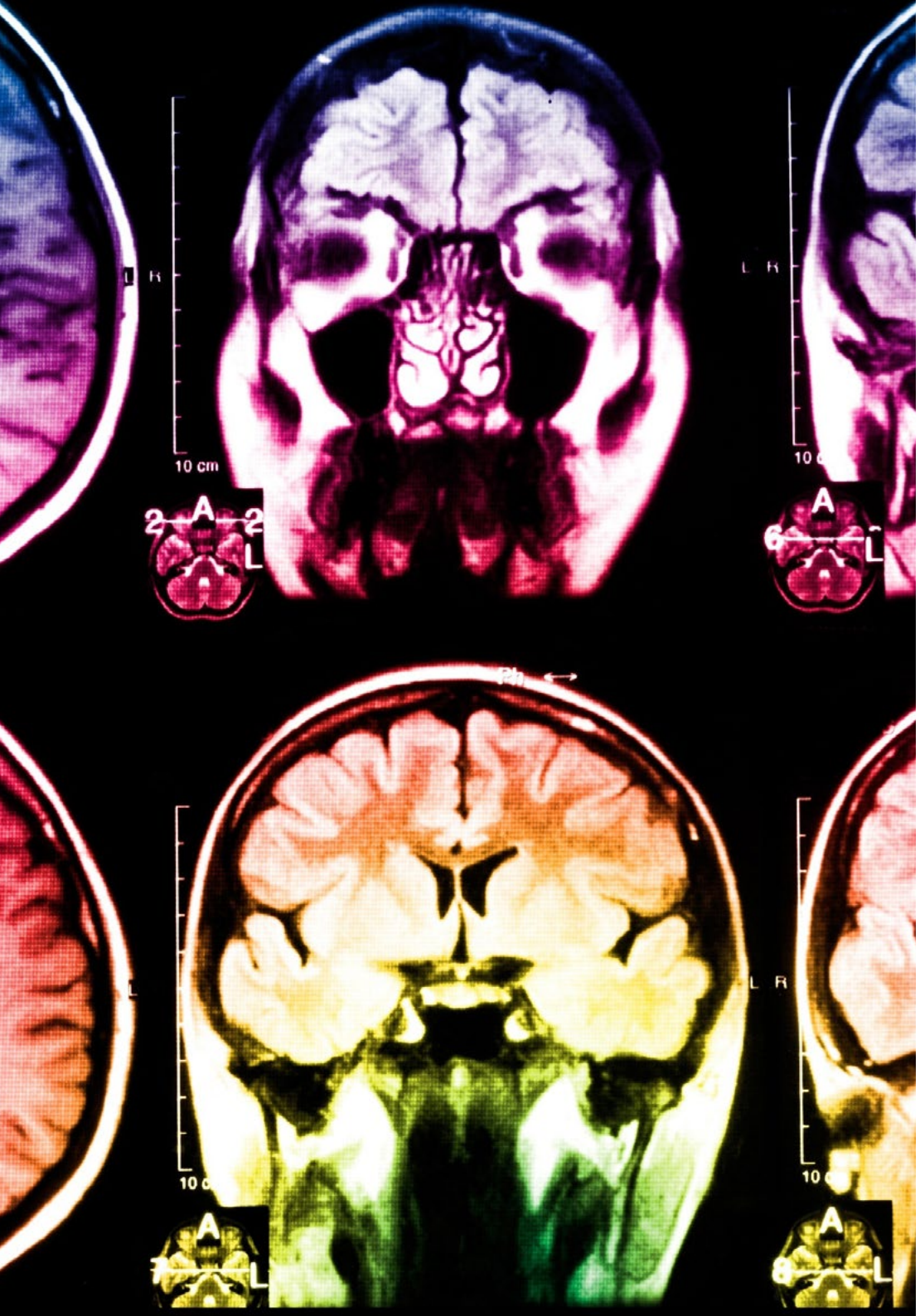
In order to facilitate tutor-student contact as much as possible, you will have a wide range of communication possibilities, both in real time and delayed (internal messaging, telephone answering service, email contact with the technical secretary, chat and videoconferences).

Likewise, this very complete Virtual Campus will allow TECH students to organize their study schedules according to their personal availability or work obligations. In this way, they will have global control of the academic content and teaching tools, based on their fast-paced professional update.

*The online study mode of this program will allow you to organize your time and learning pace, adapting it to your schedule"*

**The effectiveness of the method is justified by four fundamental achievements:**

1. Students who follow this method not only achieve the assimilation of concepts, but also a development of their mental capacity, through exercises that assess real situations and the application of knowledge.
2. Learning is solidly translated into practical skills that allow the student to better integrate into the real world.
3. Ideas and concepts are understood more efficiently, given that the example situations are based on real-life.
4. Students like to feel that the effort they put into their studies is worthwhile. This then translates into a greater interest in learning and more time dedicated to working on the course.



## The university methodology top-rated by its students

The results of this innovative teaching model can be seen in the overall satisfaction levels of TECH graduates.

The students' assessment of the teaching quality, the quality of the materials, the structure of the program and its objectives is excellent. Not surprisingly, the institution became the top-rated university by its students according to the global score index, obtaining a 4.9 out of 5.

*Access the study contents from any device with an Internet connection (computer, tablet, smartphone) thanks to the fact that TECH is at the forefront of technology and teaching.*

*You will be able to learn with the advantages that come with having access to simulated learning environments and the learning by observation approach, that is, Learning from an expert.*

As such, the best educational materials, thoroughly prepared, will be available in this program:

### 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.

This content is then adapted in an audiovisual format that will create our way of working online, with the latest techniques that allow us to offer you high quality in all of the material that we provide you with.

### Practicing Skills and Abilities

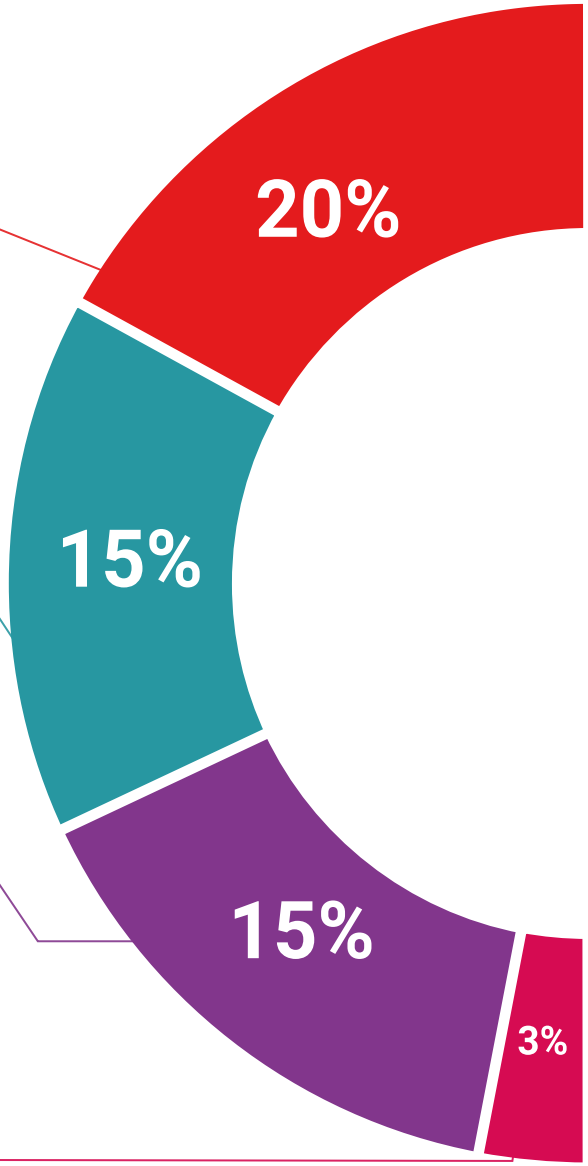
You will carry out activities to develop specific competencies and skills in each thematic field. Exercises and activities to acquire and develop the skills and abilities that a specialist needs to develop within the framework of the globalization we live in.

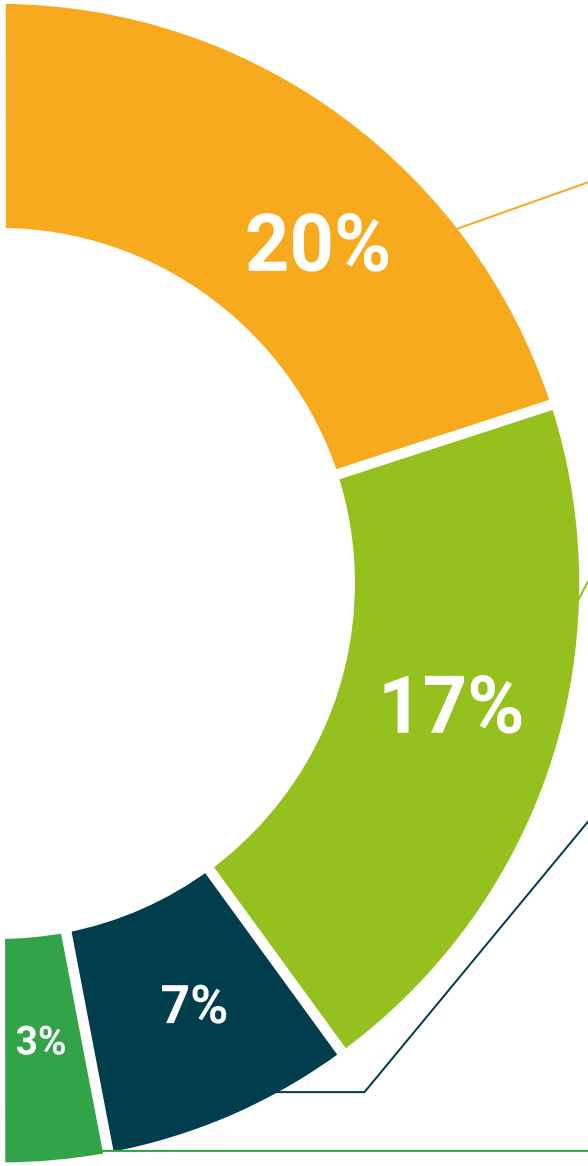
### Interactive Summaries

We present 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".

### Additional Reading

Recent articles, consensus documents, international guides... In our virtual library you will have access to everything you need to complete your education.






### Case Studies

Students will complete a selection of the best case studies in the field.
Cases that are presented, analyzed, and supervised by the best specialists in the world.

### Testing & Retesting

We periodically assess and re-assess your knowledge throughout the program. We do this on 3 of the 4 levels of Miller's Pyramid.

### 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 for future difficult decisions.

### Quick Action Guides

TECH offers the most relevant contents of the course in the form of worksheets or quick action guides. A synthetic, practical and effective way to help students progress in their learning.

06

# Teaching Staff

Loyal to its commitment to provide the most complete and updated university programs in the academic panorama, TECH carefully selects its respective teaching staff. For the design of this Postgraduate Certificate, it has managed to bring together authentic references in Modern Cryptography with ChatGPT Data Protection Assistance. This has made it possible to elaborate a variety of didactic contents defined by their high quality and applicability to the demands of the labor market. Therefore, students have the guarantees they demand to access an immersive experience that will raise their professional horizons.

*You will enjoy the personalized advice of the teaching staff, made up of experts in Modern Cryptography with ChatGPT Data Protection Assistance"*

## Management

### Dr. Peralta Martín-Palomino, Arturo

- CEO and CTO at Prometeus 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
- Doctorate in Psychology from the University of Castilla La Mancha
- Doctorate in Economics, Business and Finance from the Camilo José Cela University
- Doctorate in Psychology from University of Castilla La Mancha
- Master's Degree in Executive MBA from the Isabel I University
- Master's Degree in Sales and Marketing Management from the 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

## Professors

**Mr. Del Rey Sánchez, Alejandro**

- In Charge of Implementing Programs to Improve Tactical Emergency Care
- Degree in Industrial Organization Engineering
- Certification in Big Data and Business Analytics
- Certification in Microsoft Excel Advanced, VBA, KPI and DAX
- Certification in CIS Telecommunication and Information Systems

*A unique, crucial and decisive learning experience to boost your professional development"*

07

# Certificate

This Postgraduate Certificate in Modern Cryptography with ChatGPT Data Protection Assistance guarantees, in addition to the most rigorous and up-to-date program, access to an Postgraduate Certificate diploma 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 diploma for the **Postgraduate Certificate in Modern Cryptography with ChatGPT Data Protection Assistance** 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 guaranteeAs 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 Modern Cryptography with ChatGPT Data Protection Assistance**

Modality: **online**

Duration: **6 weeks**

Accreditation: **6 ECTS**

tech global university

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

**Postgraduate Certificate in Modern Cryptography with ChatGPT Data Protection Assistance**

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.

future
santé
personnes
information
garantie
enseignement
technologie
communauté
innovation
connaissance
qualité
en ligne
institutions
classe virtuelle

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