Postgraduate Certificate
Database Normalization

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Postgraduate Certificate

Database Normalization

- Modality: **online**
- Duration: **6 weeks**
- Certificate: **TECH Technological University**
- Dedication: **16h/week**
- Schedule: **at your own pace**
- Exams: **online**

Website: www.techtitute.com/us/information-technology/postgraduate-certificate/database-normalization

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01

Introduction

One of the raw materials for the future of companies is a robust database that meets the needs of the business today. Being able to respond effectively to immediate demand and manage large amounts of data is only possible through systems developed with a high level of maturity. This is what organizations have been listing among their objectives; and for this they require the incorporation of professionals trained in design, development and maintenance of databases, which is why this exclusive update program has been designed, with a 100% online methodology and achievable in 6 weeks of study.

In this Postgraduate Certificate, you will learn about one of the most in-demand topics in today's business environment. Enroll now and learn all about databases"

Providing IT solutions for organizations to make efficient and agile decisions, based on a huge amount of data, is part of a thorough job that requires the professional to have specific knowledge about the process of designing, developing and maintaining a database in terms of standards and performance measures.

As data is a valuable asset for business, preserving useful information for a company is fundamental and this requires adequate, manageable and secure systems. That is why, in this Postgraduate Certificate in Database Normalization, the protection of data integrity will be addressed and the focus will be on minimizing data redundancy. Reducing the problems of updating them in the tables.

Therefore, students will be able to refactor and deal with the management and coordination of data with the presentation of real cases based on problems, with content selected by the expert teachers who lead this program and who, in addition, accompany the student throughout the learning process through the various multimedia resources available on the TECH Technological University platform.

This is possible through TECH's modern study system, at the forefront of university education, which implements a 100% online methodology based on Relearning, which facilitates the learning process for the professional. This way, students can balance their daily responsibilities with their studies and graduate in a maximum of 6 weeks, without investing a great deal of time and effort.

This **Postgraduate Certificate in Database Normalization** contains the most complete and up-to-date program on the market. The most important features include:

- Case studies presented by experts in software development
- The graphic, schematic, and practical contents with which they are created, provide practical information on the 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 for experts and individual reflection work
- Content that is accessible from any fixed or portable device with an Internet connection

In order to obtain software that allows data management in an agile and efficient way, it is necessary to have the knowledge given in this program. Enroll now and qualify in 6 weeks"

Create infinite possibilities for your customers by mastering the most efficient data management techniques"

You will deepen your understanding of the OLAP system for the improvement and performance of data management processes.

TECH offers students the convenience of online study, with the quality and security of an efficient methodology.

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 training programmed to train in real situations.

This program is designed around Problem-Based Learning, whereby the professional must try to solve the different professional practice situations that arise during the academic year. For this purpose, the student will be assisted by an innovative interactive video system created by renowned and experienced experts.

02

Objectives

To develop the theoretical and practical aspects and the necessary steps, so that the databases of the software projects are adequate to the needs of data management is in synthesis the purpose of this study program. Providing the professional with the necessary knowledge so that they can reach this goal in their next projects and even adapt the present ones to the learning acquired during the development of this Postgraduate Certificate. Adding a new skill to their professional profile.

You will add value to your professional profile with this program. Developing skills to provide effective solutions in your work environment"

General Objectives

- Develop the criteria, tasks and advanced methodologies to understand the relevance of quality-oriented work
- Analyze the key factors in the quality of a software project
- Develop the relevant regulatory aspects
- Implement DevOps and systems processes for Quality Assurance
- Reduce the technical debt of projects with a quality approach rather than an approach based on economics and short deadlines
- Provide the student with specialized knowledge to be able to measure and quantify the quality of a software project
- Defend the economic proposals of projects on the basis of the quality approach

Specific Objectives

- Assess the use of the Entity-Relationship Model for the preliminary design of a database
- Apply an entity, attribute, key, etc. for the best data integrity
- Assess the dependencies, forms and rules of database normalization
- Specialize in the operation of an OLAP data warehouse system, developing and using both fact and dimension tables
- Determine the key points for database performance
- Complete proposed real-world simulation cases as ongoing learning of database design, normalization, and performance
- Establish in the simulation cases, the options to resolve in the creation of the database from a constructive point of view

Specializing in the operation of an OLAP data warehouse system will be possible with the completion of this program. Start now"

03

Course Management

Computer engineers with extensive experience in the design of software for different business environments make up the teaching staff of this Postgraduate Certificate. Their extensive experience and knowledge provide this program with a high value and quality level of content, adequate to TECH's requirements. These professionals will be in charge of teaching through a 100% online relearning methodology, with exclusive material presented in different formats, which will make the learning process much more dynamic and easy.

Having the experience of renowned professors in the area of computer engineering will allow you to acquire the value you need for your professional development"

Management

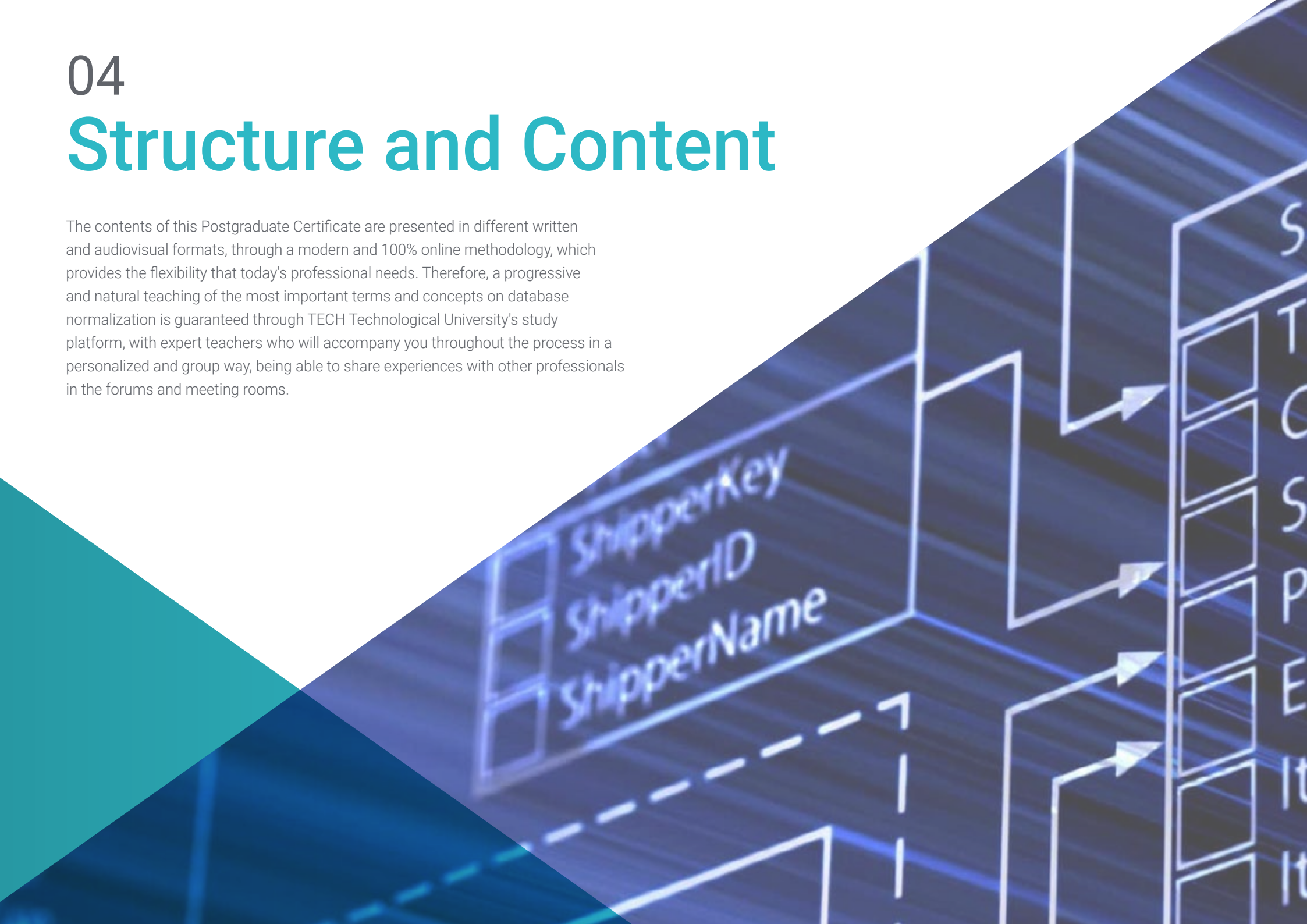
Mr. Molina Molina, Jerónimo

- AI Engineer & Software Architect. NASSAT - Internet Satellite in Motion
- Senior Consultant at Hexa Ingenieros. Introducer of Artificial Intelligence (ML and CV)
- Expert in artificial intelligence based solutions in the fields of Computer Vision, ML/DL and NLP. Currently investigating application possibilities of Transformers and Reinforcement Learning in a personal research project
- University Expert in Business Creation and Development. Bancaixa – FUNDEUN Alicante
- Computer Engineer. University of Alicante
- Master in Artificial Intelligence. Catholic University of Avila
- Executive MBA. European Business Campus Forum

04

Structure and Content

The contents of this Postgraduate Certificate are presented in different written and audiovisual formats, through a modern and 100% online methodology, which provides the flexibility that today's professional needs. Therefore, a progressive and natural teaching of the most important terms and concepts on database normalization is guaranteed through TECH Technological University's study platform, with expert teachers who will accompany you throughout the process in a personalized and group way, being able to share experiences with other professionals in the forums and meeting rooms.



You will have a variety of multimedia resources, meeting rooms, forums and case studies that will enrich your learning process"

Module 1. Database (DB) Design. Standardization and performance. Software Quality

1.1. Database Design
- 1.1.1. Databases. Typology
- 1.1.2. Databases Currently Used
  - 1.1.2.1. Relationship
  - 1.1.2.2. Key-Value
  - 1.1.2.3. Based on Graphs
- 1.1.3. Data Quality

1.2. Entity-Relationship Model Design (I)
- 1.2.1. Entity-Relationship Model. Quality and Documentation
- 1.2.2. Entities
  - 1.2.2.1. Strong Entity
  - 1.2.2.2. Weak Entity
- 1.2.3. Attributes
- 1.2.4. Set of Relationships
  - 1.2.4.1. 1 to 1
  - 1.2.4.2. 1 to Many
  - 1.2.4.3. Many to 1
  - 1.2.4.4. Many to Many
- 1.2.5. Keys
  - 1.2.5.1. Primary Key
  - 1.2.5.2. Foreign Key
  - 1.2.5.3. Weak Entity Primary Key
- 1.2.6. Restrictions
- 1.2.7. Cardinality
- 1.2.8. Heritage
- 1.2.9. Aggregation

1.3. Entity-Relationship Model (II). Tools
- 1.3.1. Entity-Relationship Model. Tools
- 1.3.2. Entity-Relationship Model. Practical Example
- 1.3.3. Feasible Entity-Relationship Model
  - 1.3.3.1. Visual Sample
  - 1.3.3.2. Sample in Table Representation

1.4. Database (DB) Standardization (I). Software Quality Considerations
- 1.4.1. DB Standardization and Quality
- 1.4.2. Dependency
  - 1.4.2.1. Functional Dependence
  - 1.4.2.2. Properties of Functional Dependence
  - 1.4.2.3. Deduced Properties
- 1.4.3. Keys

1.5. Database (DB) Normalization (II). Normal Forms and Codd Rules
- 1.5.1. Normal Shapes
  - 1.5.1.1. First Normal Form (1FN)
  - 1.5.1.2. Second Normal Form (2FN)
  - 1.5.1.3. Third Normal Form (3FN)
  - 1.5.1.4. Boyce-Codd Normal Form (BCNF)
  - 1.5.1.5. Fourth Normal Form (4FN)
  - 1.5.1.6. Fifth Normal Form (5FN)

1.5.2. Codd's Rules
1.5.2.1. Rule 1: Information
1.5.2.2. Rule 2: Guaranteed Access
1.5.2.3. Rule 3: Systematic Treatment of Null Values
1.5.2.4. Rule 4: Description of the Database
1.5.2.5. Rule 5: Integral Sublanguage
1.5.2.6. Rule 6: View Update
1.5.2.7. Rule 7: Insert and Update
1.5.2.8. Rule 8: Physical Independence
1.5.2.9. Rule 9: Logical Independence
1.5.2.10. Rule 10: Integrity Independence
1.5.2.10.1. Integrity Rules
1.5.2.11. Rule 11: Distribution
1.5.2.12. Rule 12: Non-Subversion
1.5.3. Practical Example
1.6. Data Warehouse/OLAP System
1.6.1. Data Warehouse
1.6.2. Fact Table
1.6.3. Dimension Table
1.6.4. Creation of the OLAP System. Tools
1.7. Database (DB) Performance
1.7.1. Index Optimization
1.7.2. Query Optimization
1.7.3. Table Partitioning
1.8. Simulation of Real Project for DB Design (I)
1.8.1. Project Overview (Company A)
1.8.2. Application of Database Design
1.8.3. Proposed Exercises
1.8.4. Proposed Exercises Feedback
1.9. Simulation of Real Project for BD Design (II)
1.9.1. Project Overview (Company B)
1.9.2. Application of Database Design
1.9.3. Proposed Exercises
1.9.4. Proposed Exercises Feedback
1.10. Relevance of DB Optimization to Software Quality
1.10.1. Design Optimization
1.10.2. Query Code Optimization
1.10.3. Stored Procedure Code Optimization
1.10.4. Influence of Triggers on Software Quality. Reccomendations for Use

TECH has a method that guarantees the acquisition of professional skills in each educational program. Today, you too can live the experience"

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

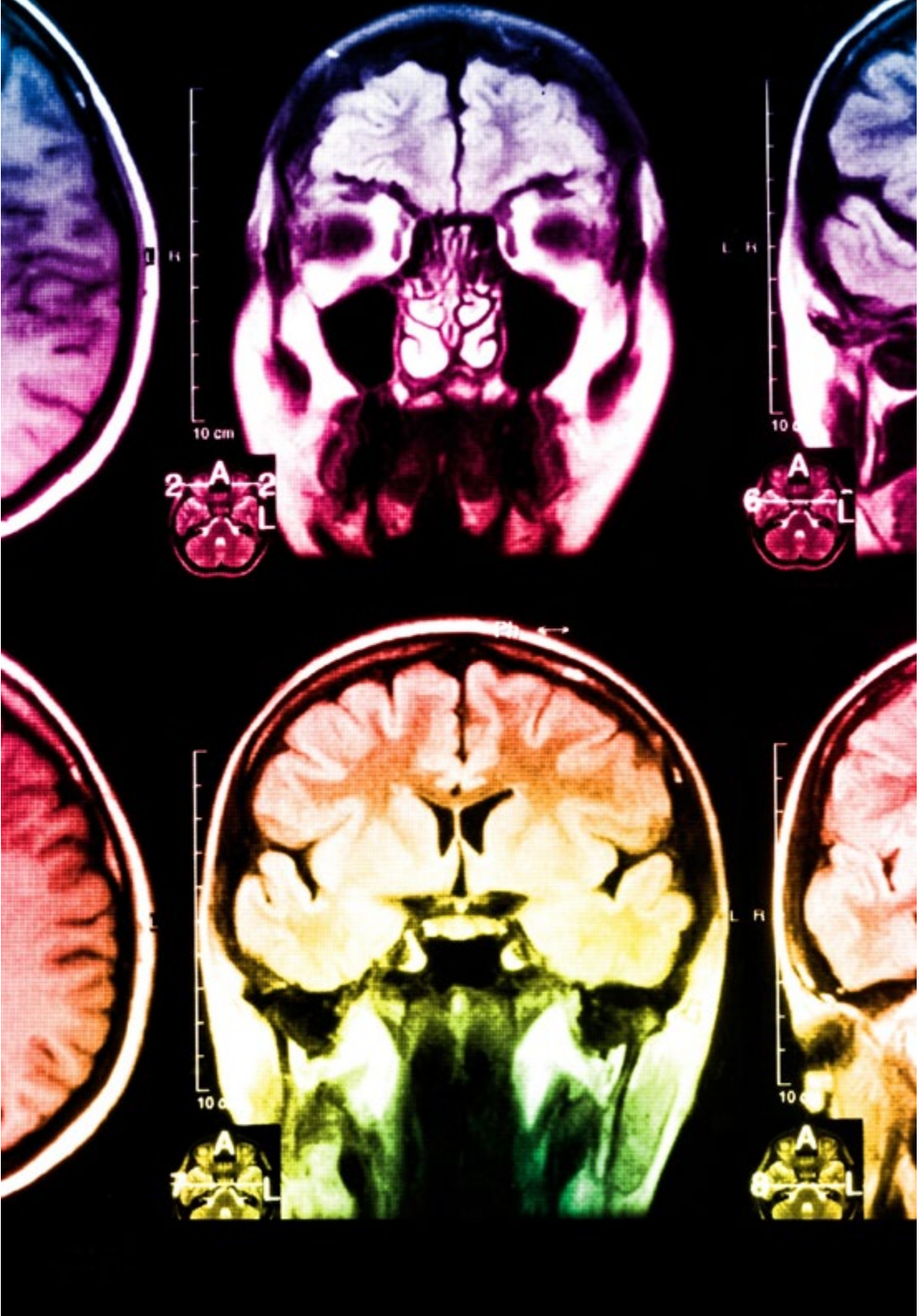
TECH effectively combines the Case Study methodology with a 100% online learning system based on repetition, which combines different teaching elements in each lesson.

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 adapted in 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.

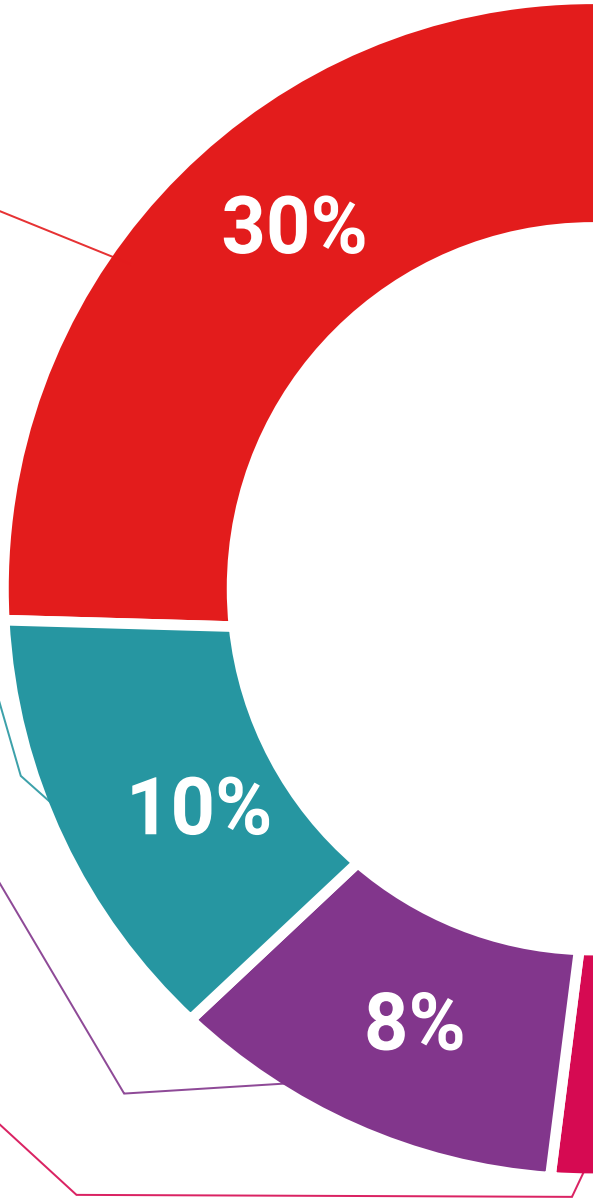
Learning from an Expert strengthens knowledge and memory, and generates confidence in future difficult decisions.

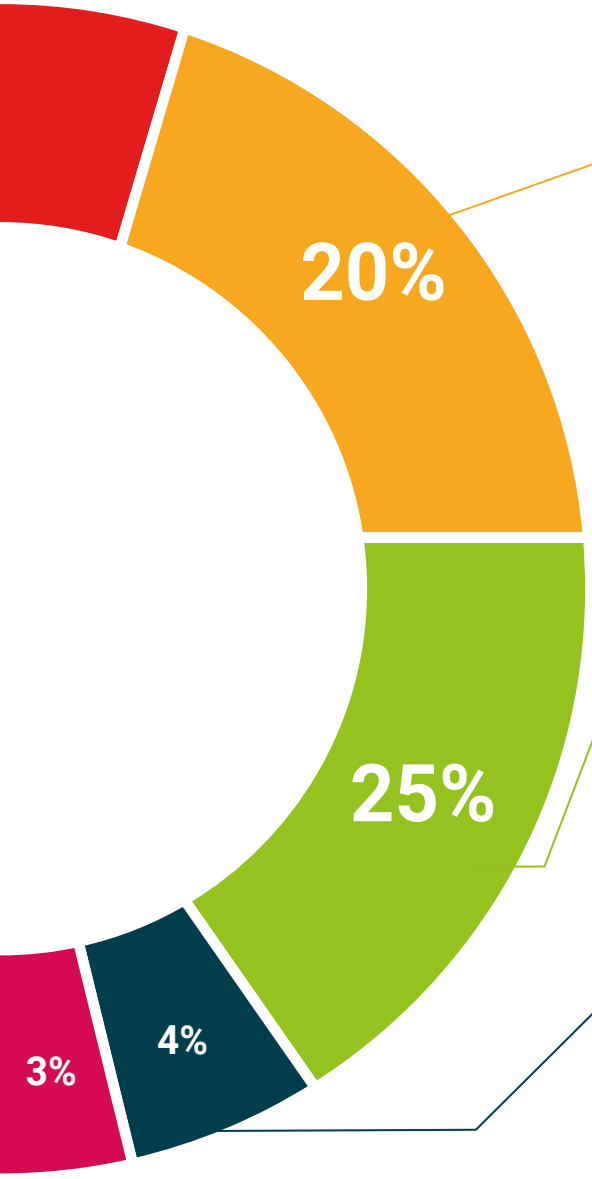
Practising Skills and Abilities

They will carry out activities to develop specific competencies and skills in each thematic 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 Database Normalization guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Certificate issued by TECH Technological University.

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

This **Postgraduate Certificate in Database Normalization** contains the most complete and up-to-date program on the market.

After the student has passed the assessments, they will receive their corresponding **Postgraduate Certificate** issued by **TECH Technological University** via tracked delivery*.

The diploma issued by **TECH Technological University** will reflect the qualification obtained in the Postgraduate Certificate, and meets the requirements commonly demanded by labor exchanges, competitive examinations and professional career evaluation committees.

Title: **Postgraduate Certificate in Database Normalization**

Official Nº of Hours: **150 h.**


tech technological university

Awards the following

DIPLOMA

to

Mr./Ms. _____, with identification number _____.

For having passed and accredited the following program

POSTGRADUATE CERTIFICATE

in

Database Normalization

This is a qualification awarded by this University, equivalent to 150 hours, with a start date of dd/mm/yyyy and an end date of dd/mm/yyyy.

TECH is a Private Institution of Higher Education recognized by the Ministry of Public Education as of June 28, 2018.

June 17, 2020

Tere Guevara Navarro

Dean

This qualification must always be accompanied by the university degree issued by the competent authority to practice professionally in each country. 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 EDUCATION will make the necessary arrangements to obtain it, at an additional cost.

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