

Postgraduate Certificate

Introduction to Databases and SQL





Postgraduate Certificate Introduction to Databases and SQL

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

Website: www.techtute.com/us/information-technology/postgraduate-certificate/introduction-databases-sql

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01

Introduction

Students will be able to broaden their knowledge in Databases and SQL, from the hand of professionals with wide experience in the sector. You will learn the different applications and purposes of database systems, as well as their operation and architecture, in a practical and 100% online way.



“

This Postgraduate Certificate will allow you to update your knowledge in Introduction to Databases and SQL in a practical way, 100% online, without renouncing to the maximum academic rigor"

This program is intended for those interested in achieving a higher level of knowledge in Introduction to Databases and SQL. The main objective is for students to specialize their knowledge in simulated work environments and conditions in a rigorous and realistic manner so they can later apply it in the real world.

This Postgraduate Certificate will prepare for professional practice of Computer Engineering, thanks to a transversal and versatile education adapted to new technologies and innovations in this field. You will obtain wide knowledge in Introduction to Databases and SQL, from the hand of professionals in the sector.

The students will be able to take the opportunity and study this program in a 100% online format, without neglecting their obligations. Upgrade your knowledge and get your Postgraduate Certificate in Introduction to Databases and SQL to continue growing personally and professionally.

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

- ◆ The development of 100 simulated scenarios presented by experts in Introduction to Databases and SQL
- ◆ Its graphical, schematic and eminently practical contents with which it is conceived provide scientific and practical information on Introduction to Databases and SQL
- ◆ News on latest developments in Introduction to Databases and SQL
- ◆ Contains practical exercises where self-assessment process can be performed to improve learning
- ◆ Interactive learning system based on case method and its application to real practice
- ◆ All of this will be complemented by 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



Learn the latests techniques and strategies with this program and achieve success as an IT Engineer"

“*Get qualified in Introduction to Databases and SQL with this intensive program, from the comfort of your home”*

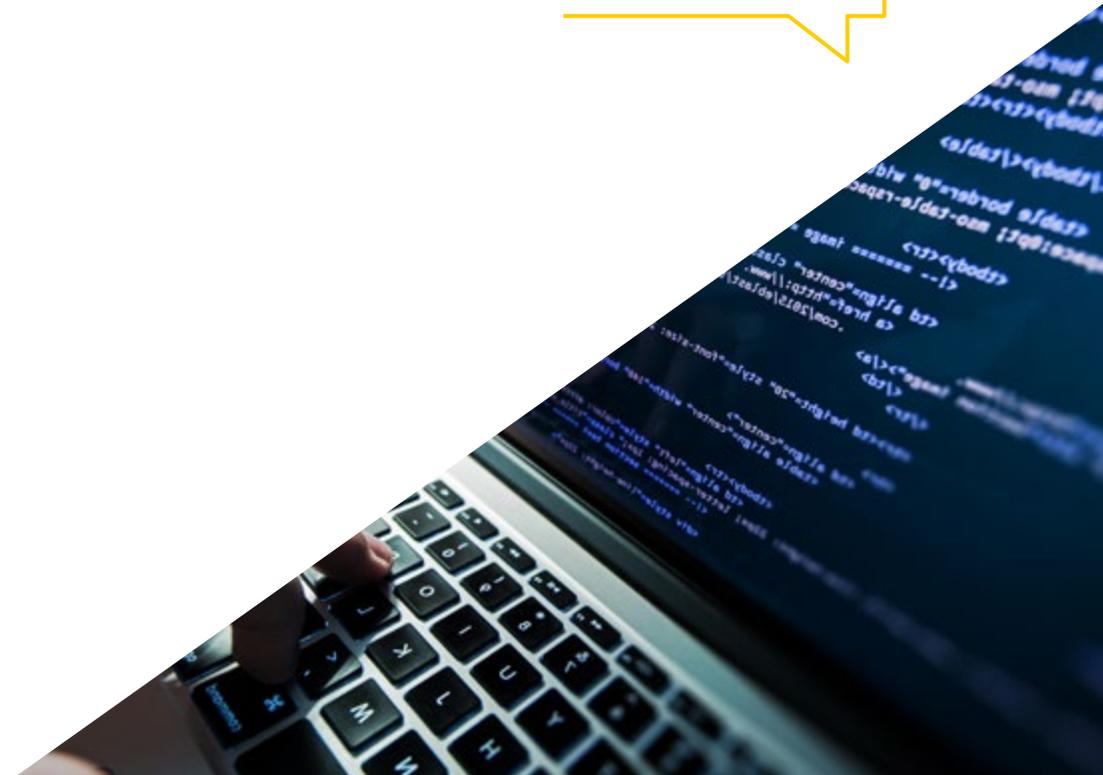
The program's teaching staff includes professionals from the sector who contribute their work experience to this training program, as well as renowned specialists from leading societies and prestigious universities.

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 training programmed to train in real situations.

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

Take advantage of the latest educational technology to get updated in Introduction to Databases and SQL without leaving home.

Access all CFD and Supercomputing content from your tablet, mobile or computer.



02 Objectives

The objective of this training is to provide IT professionals with necessary knowledge and skills to perform their activity using the most advanced protocols and techniques of the moment. Through a work approach that is totally adaptable to the students, this Postgraduate Certificate will progressively lead them to acquire the competencies that will propel them to a higher professional level.



“

Achieve your desired knowledge level and dominate fundamental concepts in Introduction to Databases and SQL with this high-level Postgraduate Certificate"



General Objectives

- ♦ To educate scientifically and technologically, as well as to prepare for professional practice of Introduction to Databases and SQL, all this with a transversal and versatile academic experience adapted to the new technologies and innovations in this field
- ♦ To obtain wide knowledge in computation field, computer structure and Introduction to Databases and SQL, all of this including mathematical, statistical and physical basis essential in an engineering degree



Achieve professional success as a computer engineer with this intensive program, developed by professionals with wide experience in the sector"





Specific Objectives

- ◆ To learn different applications and purposes of database systems, as well as their operation and architecture
- ◆ To understand the relational model, from its structure and operations to extended relational algebra
- ◆ To learn in depth what SQL Databases are, how they work, data definition and creation of queries from the most basic to the most advanced and complex
- ◆ To learn how to design databases using the entity-relationship model, how to create diagrams and characteristics of extended E-R model
- ◆ To deepen into relational databases design, analyzing different normal forms and decomposition algorithms
- ◆ To build a foundation for understanding NoSQL databases operation, as well as to introduce the Mongo DB database

03

Structure and Content

The structure of the contents has been designed by a team of Computer Engineering professionals, aware of the relevance of today's education in order to deepen in this area of knowledge, with the intention of humanistically enriching student and raising their knowledge level in Introduction to Databases and SQL through the latest educational technologies available.





“

This Postgraduate Certificate in Introduction to Databases and SQL contains the most complete and updated of learning program in the market"

Module 1. Databases.

- 1.1. Applications and Purposes of Database Systems
 - 1.1.1. Applications of different database systems
 - 1.1.2. Purpose in different database systems
 - 1.1.3. Data overview
- 1.2. Database and architecture
 - 1.2.1. Relational Databases
 - 1.2.2. Database Design
 - 1.2.3. Object-Based and Semi-Structured Databases
 - 1.2.4. Data Storage and Queries
 - 1.2.5. Transaction Management
 - 1.2.6. Data Mining and Analysis
 - 1.2.7. Database Architecture
- 1.3. The Relational Model: Structure, Operations and Extended Relational Algebra
 - 1.3.1. The Structure of Relational Databases
 - 1.3.2. Fundamental Operations in the Relational Algebra
 - 1.3.3. Other Relational Algebra Operations
 - 1.3.4. Extended Relational Algebra Operations
 - 1.3.5. Null Values
 - 1.3.6. Database Modification
- 1.4. SQL (I)
 - 1.4.1. What is SQL?
 - 1.4.2. The Definition of Data
 - 1.4.3. Basic Structure of SQL Queries
 - 1.4.4. Operations on Sets
 - 1.4.5. Aggregation Functions
 - 1.4.6. Null Values
- 1.5. SQL (II)
 - 1.5.1. Nested Subqueries
 - 1.5.2. Complex Queries
 - 1.5.3. Views
 - 1.5.4. Cursors
 - 1.5.5. Complex Queries
 - 1.5.6. Triggers

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- 1.6. Database Design and E-R Model
 - 1.6.1. Overview of the Design Process
 - 1.6.2. The Entity-Relationship Model
 - 1.6.3. Restrictions
- 1.7. Entity-Relationship Diagrams
 - 1.7.1. Entity-Relationship Diagrams
 - 1.7.2. Entity-Relationship Design Aspects
 - 1.7.3. Weak Entity Sets
- 1.8. The Extended Entity-Relationship Model
 - 1.8.1. Characteristics of the Extended E-R Model
 - 1.8.2. Design of a Database
 - 1.8.3. Reduction to Relational Schemas
- 1.9. Relational Database Design
 - 1.9.1. Characteristics of Good Relational Designs
 - 1.9.2. Atomic Domains and the First Normal Form (1FN)
 - 1.9.3. Decomposition by Functional Dependencies
 - 1.9.4. Theory of Functional Dependencies
 - 1.9.5. Decomposition Algorithms
 - 1.9.6. Decomposition by Means of Multivalued Dependencies
 - 1.9.7. More Normal Forms
 - 1.9.8. Database Design Process
- 1.10. NoSQL Databases
 - 1.10.1. What are NoSQL Databases?
 - 1.10.2. Analysis of the Different NoSQL Options and their Characteristics.
 - 1.10.3. Mongo DB

04

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.

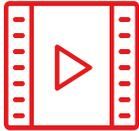
Relearning will allow you to learn with less effort and better performance, involving you more in your training, developing a critical mindset, defending arguments, and contrasting opinions: a direct equation for success.

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.



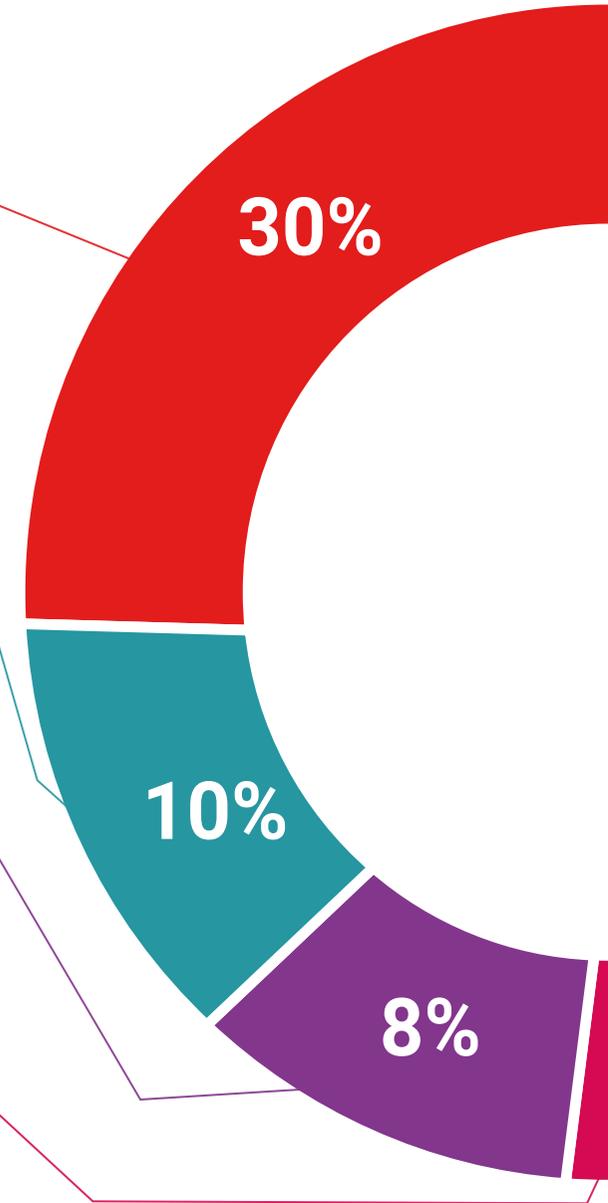
Practising Skills and Abilities

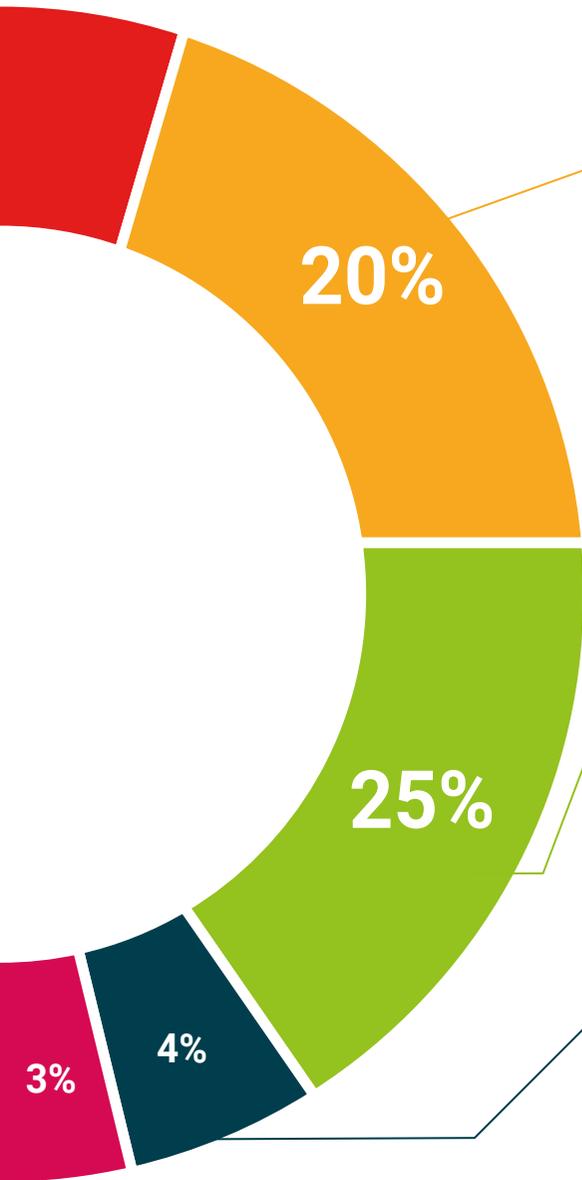
They will carry out activities to develop specific skills and abilities in each subject area. Exercises and activities to acquire and develop the skills and abilities that a specialist needs to develop in the context of the globalization that we are experiencing.



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.



05 Certificate

The Postgraduate Certificate in Introduction to Databases and SQL guarantees, in addition to the most rigorous and updated training, access to a Postgraduate Certificate issued by TECH Global University.



“

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

This program will allow you to obtain your **Postgraduate Certificate Introduction to Databases and SQL** 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 Certificate Introduction to Databases and SQL**

Modality: **online**

Duration: **6 weeks**

Accreditation: **6 ECTS**



*Apostille Convention. In the event that the student wishes to have their paper certificate issued with an apostille, TECH Global University will make the necessary arrangements to obtain it, at an additional cost.



Postgraduate Certificate Introduction to Databases and SQL

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

Postgraduate Certificate Introduction to Databases and SQL