

# Postgraduate Diploma Full-Stack Development from Scratch



## Postgraduate Diploma Full-Stack Development from Scratch

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

Website: [www.techtute.com/us/information-technology/postgraduate-diploma/postgraduate-diploma-full-stack-development-scratch](http://www.techtute.com/us/information-technology/postgraduate-diploma/postgraduate-diploma-full-stack-development-scratch)

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# 01

# Introduction to the Program

Full Stack development has become one of the most in-demand skills in the technology field, as it allows professionals to create complete web applications, handling both the client and server sides. According to a report by Harvard University, full stack development has proven crucial for startups and large corporations, providing a comprehensive approach to solving complex problems in the creation of web applications. Taking into account the advances in programming and the current digital challenges, TECH has developed this Postgraduate Diploma that will provide the most outstanding concepts in this area. Using a 100% online methodology, specialists will master the fundamentals of the most relevant technologies.





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*Take the first step towards a career in technology! With this program you will learn how to create complete web applications from scratch. Learn 100% online, at your own pace and with the flexibility you need”*

Full-Stack Development is one of the most in-demand skills in the technology field, as it allows professionals to create web applications that cover both the front end and the back end. Because of this, this discipline has become a crucial focus for the digital market, where the ability to handle all the layers of an application facilitates the creation of innovative and scalable solutions. Therefore, those interested in getting started in this field will have the opportunity to learn from the basics to the most advanced aspects of the field.

Given this premise, TECH's Full-Stack Development from Scratch program is presented as the ideal opportunity to address this need. Through an innovative and industry-oriented approach, the program will address the use of key tools such as HTML, CSS, JavaScript, Node.js, React, and databases such as MySQL and MongoDB. In addition, they will delve into the development of applications with modern frameworks and the implementation of good programming practices, allowing professionals to enhance essential technical and operational skills in web development.

By acquiring this key knowledge, graduates will aspire to a wide range of opportunities, as companies in all sectors are looking for Full-Stack Development experts. Each one will be able to choose positions such as web developer, software engineer or systems architect, and lead projects from scratch. In turn, they will be better positioned to access roles of responsibility in the technological field, characterized by its rapid evolution and constant demand.

Finally, the 100% online modality of the program will allow students to advance at their own pace without interrupting their personal or professional life. This means that the content will be available 24 hours a day, 7 days a week. Thanks to the Relearning methodology implemented, a deep understanding of the key concepts will be guaranteed, reinforcing them through repetition.

This **Postgraduate Diploma in Full-Stack Development from Scratch** contains the most complete and up-to-date educational program on the market. Its most notable features are:

- ♦ The development of case studies presented by experts in programming
- ♦ The graphic, schematic, and practical contents with which they are created, provide scientific and practical information on the disciplines that are essential for professional practice
- ♦ Practical exercises where the self-assessment process can be carried out to improve learning
- ♦ Special emphasis on innovative methodologies in Full-Stack Development from Scratch
- ♦ 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



*Become a Full-Stack expert! From the basics to the most advanced technologies, this qualification will prepare you to face the challenges of web development. Enroll now and raise your professional profile!"*

“

*Boost your career with cutting-edge education. This Postgraduate Diploma is designed to guide you step by step into the world of web development. You will be taught by expert teachers and with the best online learning methods”*

Its teaching staff includes professionals from the field of programming, who bring their work experience to this program, as well as renowned specialists from leading companies 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 an immersive learning experience designed to prepare for real-life situations.

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

*Do you want to create web applications from start to finish? This qualification will help you achieve your goals, mastering technologies such as React, Node.js and databases. What are you waiting for to enroll?*

*Master web development from A to Z! With this program you will learn everything from the basics to advanced front-end and back-end techniques. Make the most of the flexible online methodology right now.*





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 relies on an enormous faculty of more than 6,000 professors of the highest international renown.





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*Study at the world's largest online university and guarantee your professional success. The future starts 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 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.



#### 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.



#### 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.

# 03 Syllabus

This qualification has been designed to provide a detailed and practical guide, enabling professionals to acquire the skills necessary to excel in this constantly evolving area. The syllabus will progressively cover the key stages of Full-Stack Development, starting with the fundamentals of HTML, CSS and JavaScript. It will then delve into advanced frameworks such as React and Angular, which optimize the user experience. It will also include modules dedicated to the back end, such as Node.js, Express and relational and non-relational databases, which are crucial tools for the logic and storage of data in modern applications.





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*With up-to-date content and a practical approach, you will be prepared to take on leadership roles in digital projects, consolidating your place in one of the most promising areas of the technology sector”*

## Module 1. Programming and Software Development from Scratch

- 1.1. Software and Hardware. Relationship and Differences
  - 1.1.1. Software
  - 1.1.2. Differences between Software and Hardware
  - 1.1.3. Relationship between Software, Hardware and Programming
- 1.2. Programming. Key Aspects
  - 1.2.1. Programming
  - 1.2.2. Objectives and Applications
  - 1.2.3. Programs, Source Code, Compilation and Execution
  - 1.2.4. Errors: Syntax, Execution and Logical Errors
- 1.3. Programming from Scratch
  - 1.3.1. Program Structure
  - 1.3.2. Algorithms: Structure and Examples
  - 1.3.3. Relationship between Algorithms and Programs
  - 1.3.4. Problem Solving Using Algorithms
- 1.4. Programming Language Paradigms and Types
  - 1.4.1. Programming Paradigms
    - 1.4.1.1. Imperative Paradigms
    - 1.4.1.2. Object-Oriented Paradigm
    - 1.4.1.3. Functional Paradigm
    - 1.4.1.4. Declarative Paradigm
  - 1.4.2. Low-Level vs. High-Level Languages
  - 1.4.3. Compiled vs. Interpreted Languages
- 1.5. Translation of Programming Languages
  - 1.5.1. The Compiler. Compilation Process
  - 1.5.2. The Interpreter: Interpretation Process
  - 1.5.3. Differences between Compilation and Interpretation
- 1.6. Bits, Binary Operations and Logic Gates
  - 1.6.1. Bit. Binary Representation
  - 1.6.2. Basic Operations with Bits: AND, OR, XOR, NOT
  - 1.6.3. Conversion between Binary and Decimal
  - 1.6.4. Logic Gates: OR, AND, XOR, NOT, NOR and NAND

- 1.7. Designing Algorithms from Scratch
  - 1.7.1. Designing an Algorithm from Scratch
  - 1.7.2. Sequential, Conditional and Repetitive Algorithms
  - 1.7.3. Recursive Algorithms and their Comparison with Iterative Algorithms
- 1.8. Elements of the Program: Components and Structure
  - 1.8.1. Data Input and Output
  - 1.8.2. Variables and Constants: Use
  - 1.8.3. Data Processing and Manipulation
  - 1.8.4. Basic Functions and Procedures with Flowcharts
- 1.9. Control Structures with Flowcharts
  - 1.9.1. Control Structures. Functions in Programming
  - 1.9.2. Conditional Structures: Examples with Flowcharts
  - 1.9.3. Repetitive Structures: Examples with Flowcharts
- 1.10. Software Development Life Cycle and Models
  - 1.10.1. Software Life Cycle. Phases
  - 1.10.2. Development Models: Waterfall, Iterative and Agile
  - 1.10.3. Testing and Maintenance in Software Development

## Module 2. Back-End Development I: Python from Scratch

- 2.1. Python from Scratch. Installation
  - 2.1.1. Python Language. Features
  - 2.1.2. Installing Python on Windows, macOS and Linux
  - 2.1.3. Setting up the Development Environment: IDEs and Code Editors
  - 2.1.4. First Program in Python: "Hello World"
- 2.2. Syntax and Variables in Python
  - 2.2.1. Structure of Python Code: Indentation
  - 2.2.2. Comments in Python
  - 2.2.3. Variables and Data Types in Python
  - 2.2.4. Arithmetic and Logical Operations in Python
- 2.3. Flow Control: Conditionals
  - 2.3.1. Control Structures
  - 2.3.2. Conditional Statements: if, elif, else
  - 2.3.3. Ternary Conditional Operator



- 2.4. Loops in Python
  - 2.4.1. Use of Loops in Programming
  - 2.4.2. "for" and "while" Loops
  - 2.4.3. Flow Control in Loops: Break and Continue
  - 2.4.4. Nested Loops
- 2.5. Functions in Python
  - 2.5.1. Functions in Python. Uses
  - 2.5.2. Parameters and Arguments of Functions
  - 2.5.3. Return Values
  - 2.5.4. Predefined Functions vs. User-Created Functions
- 2.6. Lists and Tuples in Python
  - 2.6.1. Creation and Use of List in Python
  - 2.6.2. Common Operations with Lists: Add, Remove, Modify
  - 2.6.3. Tuples: Differences with Lists
  - 2.6.4. Creating and Using Lists in Python
- 2.7. Dictionaries and Sets in Python
  - 2.7.1. Dictionaries: Key-Value
  - 2.7.2. Methods for Manipulating Dictionaries
  - 2.7.3. Sets: Use
  - 2.7.4. Comparison of Dictionaries and Sets
- 2.8. File Handling in Python from Scratch
  - 2.8.1. Opening and Closing Files
  - 2.8.2. Opening Modes: Reading, Writing and Appending
  - 2.8.3. Reading and Writing Text Files
- 2.9. Handling Errors and Exceptions
  - 2.9.1. Types of Exceptions
  - 2.9.2. Using Try, Except to Handle Errors
  - 2.9.3. Creating Custom Exceptions
- 2.10. Best Practices and Debugging in Python
  - 2.10.1. Debugging: Purpose
  - 2.10.2. Debugging Techniques: Use of Print and Breakpoints
  - 2.10.3. Best Practices in Code Writing

### Module 3. Front End III - React.js from Scratch

- 3.1. React.js from Scratch
  - 3.1.1. React JS as a Library for Developing Web Applications
  - 3.1.2. Components and Virtual DOM in React JS: Architecture and Operation
  - 3.1.3. Installation and Configuration with the NextJS Frameworks
  - 3.1.4. First Component in React: "Hello World"
- 3.2. JavaScript XML or JSX, and Components in React
  - 3.2.1. JSX: Syntax and Features
  - 3.2.2. Creating Functional Components in React.js
  - 3.2.3. Using Props to Pass Data Between Components
  - 3.2.4. Functional Components vs. Class Components for Development in React.js
- 3.3. State and Events in React.js
  - 3.3.1. Component State in React
  - 3.3.2. Use of useState for State Management
  - 3.3.3. Event Handling in React.js: onClick, onChange, Among Others
  - 3.3.4. Examples of State and Event Management in React.js
- 3.4. Component Lifecycle and Effects in React
  - 3.4.1. Component Lifecycle in React
  - 3.4.2. Using useEffect to Manage Effects in React
  - 3.4.3. Components with Mounting, Updating and Unmounting in React
- 3.5. Routing with React Router
  - 3.5.1. SPA (Single Page Applications) and Routing in Web Applications
  - 3.5.2. React Router Installation and Configuration
  - 3.5.3. Creating Routes and Navigating Between Pages with React Router
- 3.6. Forms and Validation in React
  - 3.6.1. Creating Interactive Forms in React
  - 3.6.2. Handling User Input and Sending Data in React
  - 3.6.3. Real-Time Form Validation in React
- 3.7. Consuming APIs in React
  - 3.7.1. Consuming APIs with Fetch and Axios in React
  - 3.7.2. Handling Loading, Success and Error States in React
  - 3.7.3. Updating Components According to API Data in React

- 3.8. Reusable Components and External Libraries in React
  - 3.8.1. Reusable Components in React
  - 3.8.2. Creating Reusable Components in React
  - 3.8.3. Using External Libraries like Material UI and Bootstrap in React
- 3.9. Global State Management in React
  - 3.9.1. Global State Management with Native Options: Context API and Custom Hooks
  - 3.9.2. External Libraries for Data Management
  - 3.9.3. Comparing Approaches to Global State Management. Examples
- 3.10. React Application Deployment and Optimization
  - 3.10.1. Preparing a React Application for Production
  - 3.10.2. Deploying on Platforms such as Netlify and Vercel
  - 3.10.3. Performance Optimization: Lazy Loading, Memoization, Server Components and Code Splitting
  - 3.10.4. Monitoring and Maintaining React Applications in Production. Tools and Performance Analysis

### Module 4. Database Management and Optimization from Scratch

- 4.1. Database from Scratch
  - 4.1.1. Databases. Types
  - 4.1.2. Relational vs. Non-relational Databases
  - 4.1.3. SQL and NoSQL Programming Languages
- 4.2. Relational Data Modeling
  - 4.2.1. Relational Database Model
  - 4.2.2. Tables, Rows, and Columns in a Relational Database
  - 4.2.3. Primary and Foreign Keys: Relationships Between Tables
  - 4.2.4. Normalization: 1NF, 2NF, 3NF
- 4.3. SQL Language: DML and DDL
  - 4.3.1. SQL: Structured Query Language
  - 4.3.2. Create and Delete Queries: CREATE, DROP
  - 4.3.3. SELECT, INSERT, UPDATE and DELETE Queries
  - 4.3.4. Filtering and Sorting Data with SQL





- 4.4. Advanced SQL Queries
  - 4.4.1. Joins: INNER JOIN and OUTER JOIN
  - 4.4.2. Subqueries and Nested Queries
  - 4.4.3. Aggregate Functions in SQL: SUM, AVG, COUNT
- 4.5. NoSQL Databases and MongoDB
  - 4.5.1. NoSQL Database
  - 4.5.2. Comparison between SQL and NoSQL
  - 4.5.3. MongoDB: Document Database
  - 4.5.4. Flexible Schemas in NoSQL
- 4.6. Database Optimization
  - 4.6.1. Importance of Query Optimization
  - 4.6.2. Using Indexes in Relational Databases
  - 4.6.3. NoSQL Database Optimization
- 4.7. Database Security
  - 4.7.1. Database Security
  - 4.7.2. Encryption of Sensitive Data
  - 4.7.3. User and Permission Management in Databases
  - 4.7.4. Database Protection Strategies against Attacks
- 4.8. Database Scalability
  - 4.8.1. Database Scalability
  - 4.8.2. Horizontal and Vertical Partitioning
  - 4.8.3. Database Replication and Clustering
- 4.9. Data Backup and Recovery
  - 4.9.1. Importance of Database Backup
  - 4.9.2. Automatic and Manual Backup Techniques
  - 4.9.3. Data Recovery in Relational and NoSQL Databases
- 4.10. Database Implementation in Projects
  - 4.10.1. Database Design for a Real Project
  - 4.10.2. Database Integration with Back-End Applications

# 04

## Teaching Objectives

The main objective of this program is to train professionals to design, develop and implement complete technological solutions that respond to the current demands of the digital market. In this way, the program has been carefully structured to provide comprehensive knowledge, ranging from the fundamentals of web development to the handling of advanced technologies, thereby preparing highly qualified and competitive experts. In turn, they will master both the front end and back end of an application, ensuring a perfect balance between visual creativity and technical efficiency.





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*With an up-to-date approach, you will not only meet current industry standards, but also be at the forefront of digital transformation”*



## General Objectives

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- ♦ Master the fundamentals of programming and web development to create complete applications
- ♦ Design attractive and functional user interfaces using front-end technologies
- ♦ Implement robust back-end solutions with scalable databases and servers
- ♦ Create and manage relational and non-relational databases efficiently
- ♦ Integrate APIs and external services into web applications to extend functionality
- ♦ Optimize the performance of web applications to improve the user experience
- ♦ Apply security practices in the development of Full-Stack applications
- ♦ Use version control tools to manage collaborative projects
- ♦ Develop scalable applications using modern frameworks and technologies
- ♦ Solve complex problems by implementing innovative solutions



*The professors, renowned professionals, will guide you throughout this academic journey, providing you with practical tools to address real cases. Take the next step in your career with us!"*







## Specific Objectives

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### **Module 1. Programming and Software Development from Scratch**

- ♦ Define and differentiate between software and hardware
- ♦ Understand the basic concepts of programming
- ♦ Understand the basic structure of a program
- ♦ Explore and analyze the different programming paradigms

### **Module 2. Back-End Development I: Python from Scratch**

- ♦ Master the characteristics of Python
- ♦ Understand the structure and basic syntax of Python
- ♦ Develop skills in flow control using conditionals
- ♦ Apply loops to create repetition cycles in Python

### **Module 3. Front End III - React.js from Scratch**

- ♦ Understand the use of JSX to create declarative interfaces
- ♦ Learn to work with functional components, props and life cycles
- ♦ Manage local and global states using modern tools such as Context API and Redux Toolkit
- ♦ Implement routing to build single-page applications (SPAs)

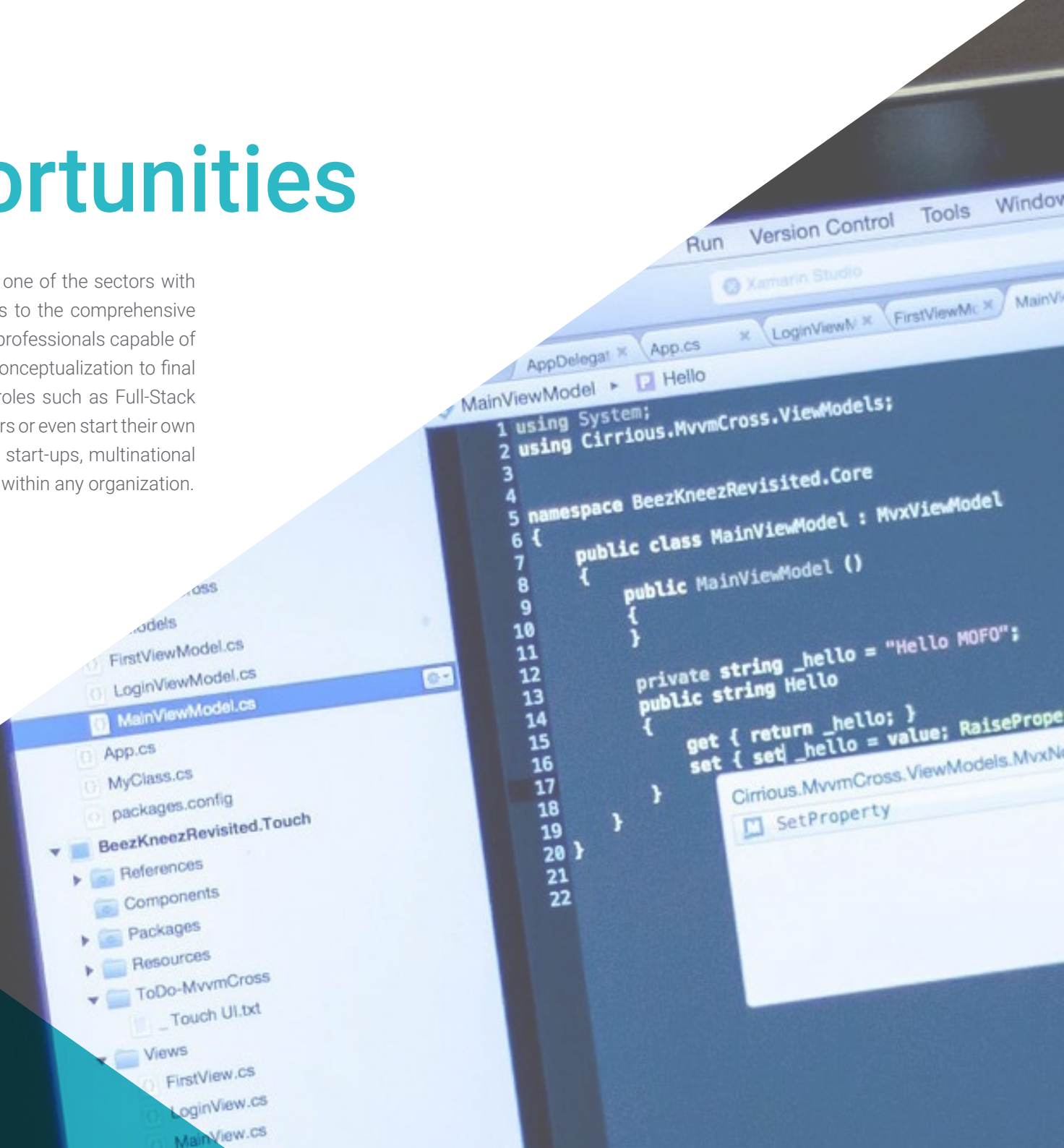
### **Module 4. Database Management and Optimization from Scratch**

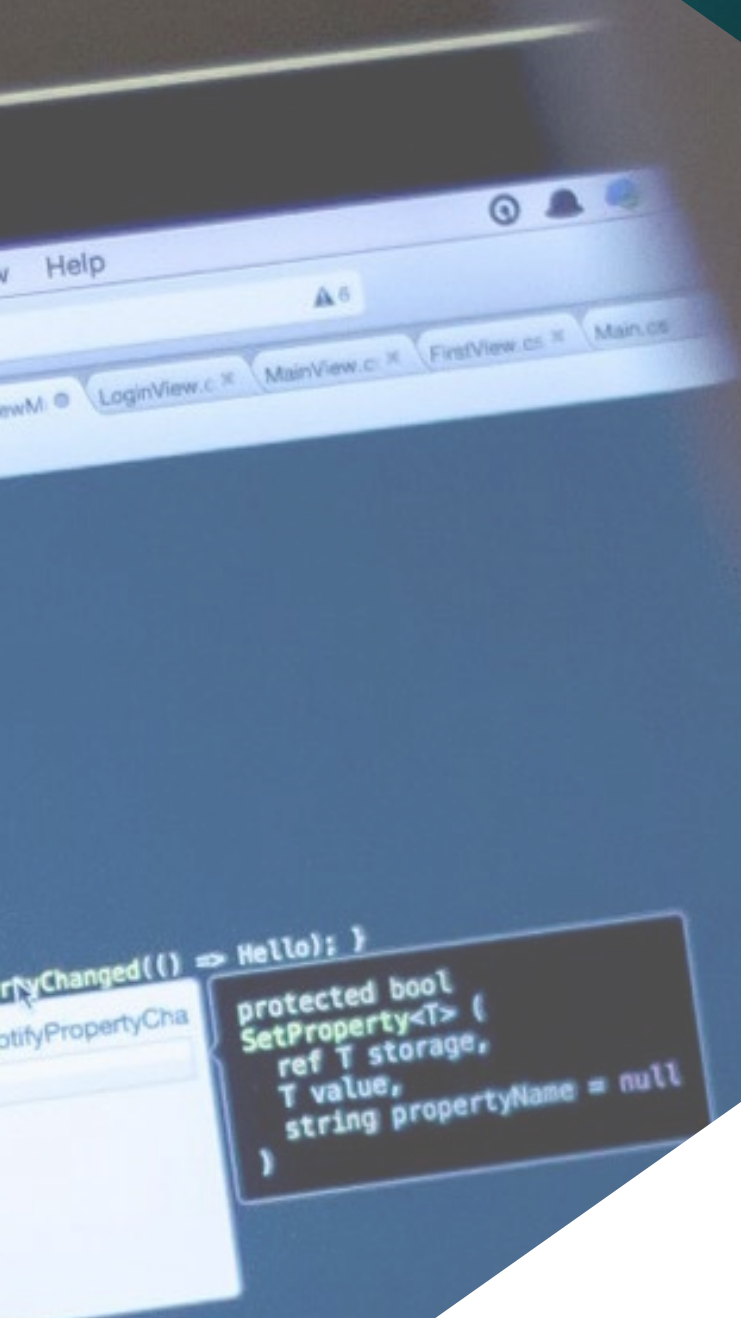
- ♦ Identify the different types of databases and their characteristics
- ♦ Understand and apply the relational data model
- ♦ Develop SQL skills for database management
- ♦ Use advanced SQL queries

# 05

## Career Opportunities

This program will open up a range of job opportunities in one of the sectors with the highest demand in today's technology market. Thanks to the comprehensive knowledge it offers, graduates will be able to stand out as professionals capable of leading web development and application projects, from conceptualization to final implementation. In addition, they will be able to work in roles such as Full-Stack developers, software engineers, technology project managers or even start their own digital businesses. Finally, they will be prepared to work in start-ups, multinational technology companies, consultancies or innovation teams within any organization.





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*Ready to succeed in an industry full of possibilities and in constant evolution? Join this program now and boost your knowledge to grow professionally”*



### Graduate Profile

Graduates will be versatile professionals, highly qualified to face the challenges of the technology sector. With a multidisciplinary profile, they will be prepared to design, develop and implement complete digital solutions, from the back-end structure to the user interface, using the most in-demand technologies on the market today. Thanks to their mastery of programming languages, frameworks and agile methodologies, they will stand out for their ability to work on dynamic, high-impact projects. In addition, they will acquire an analytical and decisive approach, which will enable them to optimize development processes and lead technological initiatives in multidisciplinary teams.

*With TECH's support, you will be prepared to stand out as a leader in the development of innovative and quality digital solutions. You will be able to make a difference in a highly competitive sector.*

- ♦ **Ability to Solve Complex Problems:** Analyze technological challenges from multiple perspectives, designing and implementing innovative and efficient solutions for diverse digital environments
- ♦ **Teamwork and Effective Communication:** Working with agile methodologies, developing skills to collaborate in multidisciplinary teams, promoting coordination, the exchange of ideas and clear communication in Full-Stack development projects.
- ♦ **Adaptability to Technological Change:** Efficiently manage new technologies and trends in a constantly evolving sector.
- ♦ **Time Management and Strategic Planning:** Optimize time in development projects and guarantee the delivery of high-quality results within established deadlines





After completing the program, you will be able to use your knowledge and skills in the following positions:

- 1. Full-Stack Developer:** Designer and programmer of front-end and back-end web applications, ensuring functionality and user experience in various digital environments.
- 2. Front-End Developer:** Responsible for visual interfaces, creating interactive and attractive experiences for users using technologies such as HTML, CSS and JavaScript.
- 3. Back-End Developer:** Responsible for server logic, databases and systems to ensure the efficient and secure operation of digital applications.
- 4. Software Engineer:** Manager of the stages of the software life cycle, from design and development to the implementation and maintenance of technological solutions.
- 5. Web Development Consultant:** Strategic advisor for the creation of web platforms, optimizing resources and guaranteeing the success of digital projects.
- 6. Database Administrator:** Database systems manager to guarantee the accessibility, integrity and security of business information.
- 7. DevOps Specialist:** Responsible for integrating development and operations processes to improve collaboration between teams, automating tasks and ensuring continuous deployments.
- 8. Freelance Web Developer:** Developer of customized solutions for independent clients, working on specific projects ranging from corporate websites to complex web applications.



*Do you want to become the specialist who will lead Full-Stack Development? This program will provide you with practical tools and a flexible approach that will drive you to meet your goals"*

06

# 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.

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*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.

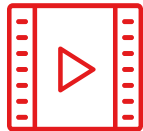
The students' assessment of the teaching quality, the quality of the materials, the structure of the program and its objectives is excellent. Not surprisingly, the institution became the top-rated university by its students according to the global score index, obtaining a 4.9 out of 5.

*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

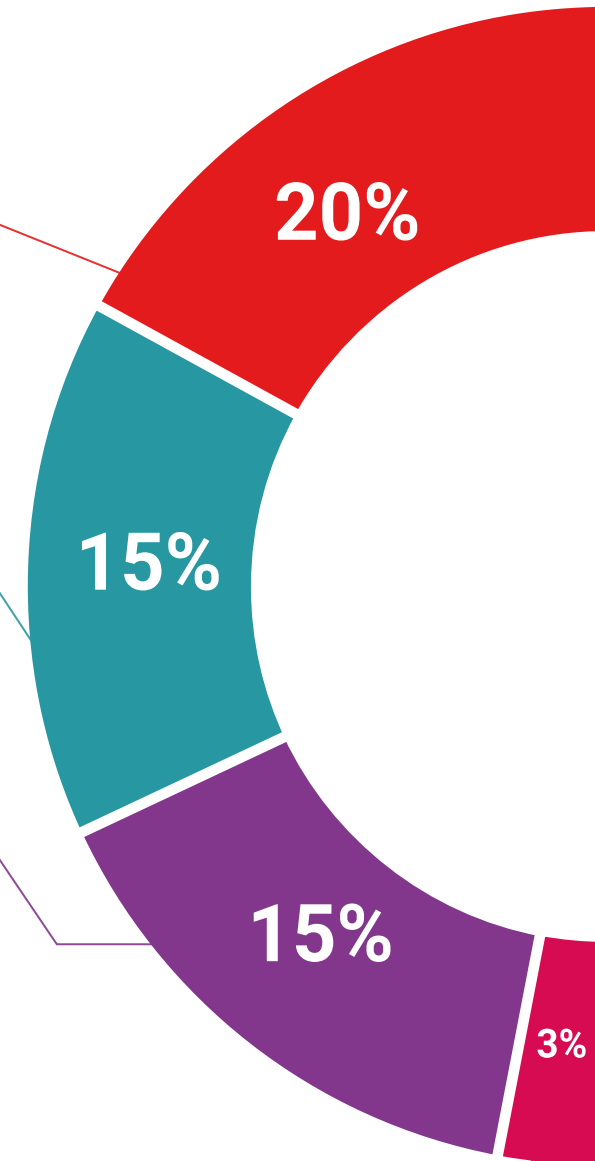
We present the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

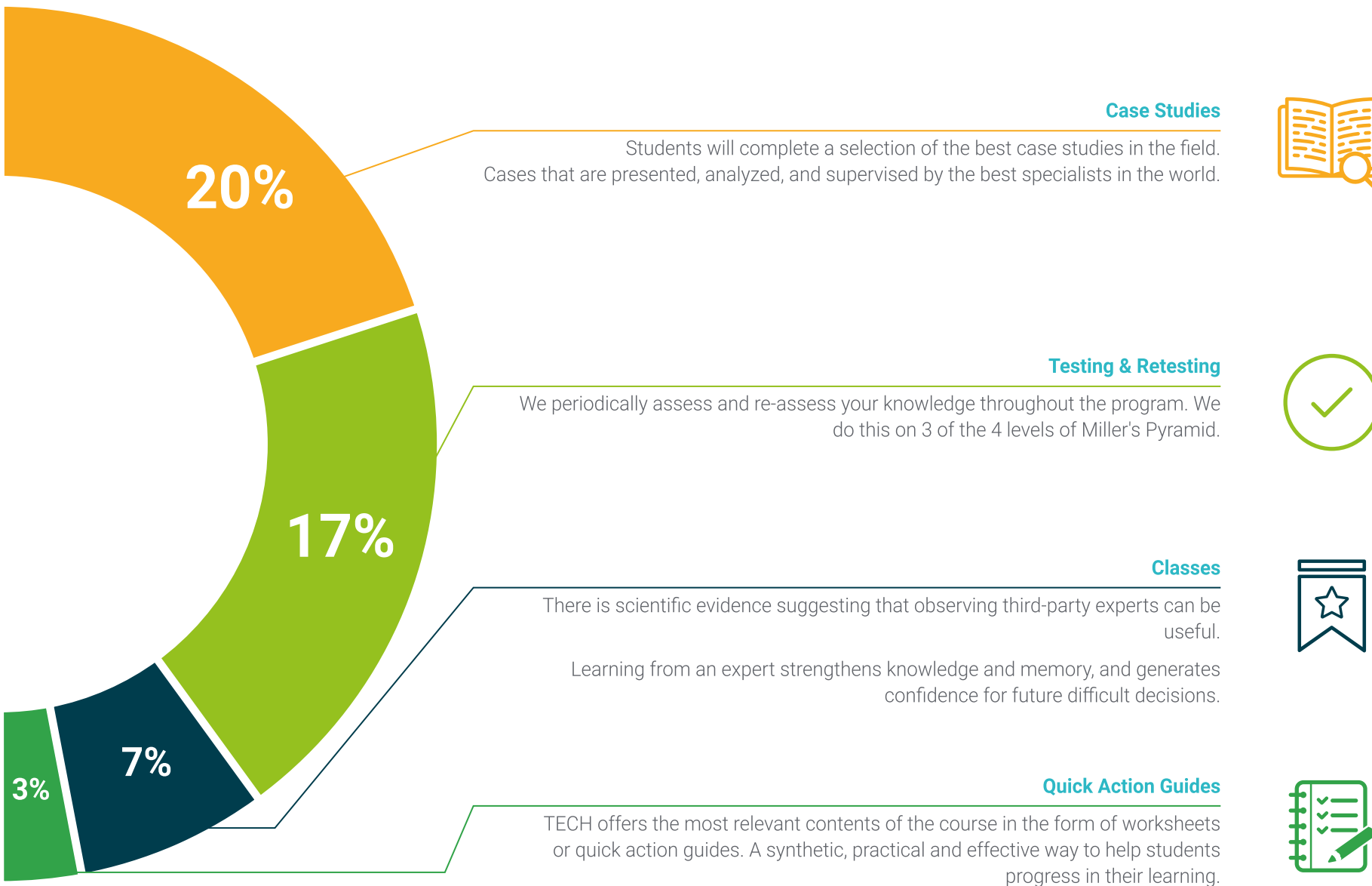
This exclusive educational system for presenting multimedia content was awarded by Microsoft as a "European Success Story".



#### Additional Reading

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







07

# Teaching Staff

The teaching staff is made up of a team of world-class professionals with extensive experience in the technology sector. In fact, each one has worked on outstanding software and application development projects, collaborating with renowned international companies. They are also committed to academic excellence and innovation, using dynamic teaching methods adapted to the needs of the sector. Thanks to this combination of theoretical knowledge and practical experience, students will have access to a comprehensive perspective that will enable them to successfully tackle the challenges of Full-Stack programming.





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*The quality of the teaching staff is one of the keys to academic success. Having experts who are up to date with the latest trends in web development is a unique opportunity to advance your professional career"*

## Management



### Dr. Lucas Cuesta, Juan Manuel

- ♦ Senior Software Engineer and Analyst at Indizen – Believe in Talent
- ♦ Senior Software Engineer and Analyst at Krell Consulting and IMAGiNA Artificial Intelligence
- ♦ Software Engineer at Intel Corporation
- ♦ Software Engineer at Intelligent Dialog Systems
- ♦ PhD in Electronic Systems Engineering for Intelligent Environments from the Polytechnic University of Madrid
- ♦ Graduate in Telecommunications Engineering at the Polytechnic University of Madrid
- ♦ Master's Degree in Electronic Systems Engineering for Intelligent Environments from the Polytechnic University of Madrid



### Mr. Márquez Ruiz de Lacanal, Juan Antonio

- ♦ Software Developer at GTD Defense & Security Solutions
- ♦ Software Developer at Solera Inc
- ♦ Development and Research Engineer at GRVC Sevilla
- ♦ Co-founder of Unmute
- ♦ Co-founder of VR Educa
- ♦ Academic Exchange in Engineering and Entrepreneurship at the University of California, Berkeley
- ♦ Degree in Industrial Engineering from the University of Sevilla

## Professors

### Mr. Pi Morell, Oriol

- ♦ Functional Analyst at Fihoca
- ♦ Hosting and Mail Product Owner CDMON
- ♦ Functional Analyst and Software Engineer at Atmira and CapGemini
- ♦ Teacher at ORACLE Forms CapGemini and Atmira
- ♦ Professional Master's Degree in Technical Engineering in Computer Management from the Autonomous University of Barcelona.
- ♦ Master's Degree in Artificial Intelligence from the Catholic University of Avila
- ♦ Professional's Degree in Business Administration and Management by IMF Smart Education
- ♦ Master's Degree in Information of Systems Management by IMF Smart Education
- ♦ Postgraduate Degree in Design in Patterns from the Open University of Catalonia

### Dr. Luna Perejón, Francisco

- ♦ Specialist in Computer Architecture and Technology
- ♦ PhD in Computer Engineering from the University of Sevilla
- ♦ Master's Degree in Computer Engineering from the University of Sevilla
- ♦ Degree in Health Engineering from the University of Sevilla
- ♦ Degree in Computer Engineering and Computer Technology from the University of Sevilla
- ♦ Member of: Robotics and Computer Technology Research Group (TEP108)



# 08 Certificate

This Postgraduate Diploma in Full-Stack Development from Scratch guarantees, in addition to the most rigorous and up-to-date program, access to an Postgraduate 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 Diploma in Full-Stack Development from Scratch** endorsed by **TECH Global University**, the world's largest online university.

**TECH Global University**, is an official European University publicly recognized by the Government of Andorra ([official bulletin](#)). Andorra is part of the European Higher Education Area (EHEA) since 2003. The EHEA is an initiative promoted by the European Union that aims to organize the international training framework and harmonize the higher education systems of the member countries of this space. The project promotes common values, the implementation of collaborative tools and strengthening its quality assurance mechanisms to enhance collaboration and mobility among students, researchers and academics.

This **TECH Global University** private qualification, is a European program of continuing education and professional updating that guarantees the acquisition of competencies in its area of knowledge, providing a high curricular value to the student who completes the program.

Title: **Postgraduate Diploma in Full-Stack Development from Scratch**

Modality: **online**

Duration: **6 months**

Accreditation: **18 ECTS**





## Postgraduate Diploma Full-Stack Development from Scratch

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



# Postgraduate Diploma Full-Stack Development from Scratch