

# Postgraduate Certificate

## Introduction to Software Engineering

```
use  
true  
the end -add back the deselected mirror modifier object  
select= 1  
b.select=1  
text.scene.objects.active = modifier_ob  
("Selected" + str(modifier_ob)) # modifier ob is the active ob  
#mirror_ob.select = 0  
name = bpy.context.selected_objects[0]  
#my_data.objects[my_name].select = 1  
print("name selected object is object: " + name)  
print("name selected object is object: " + name)
```



## Postgraduate Certificate Introduction to Software Engineering

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

Website: [www.techtute.com/us/information-technology/postgraduate-certificate/introduction-software-engineering](http://www.techtute.com/us/information-technology/postgraduate-certificate/introduction-software-engineering)

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# 01 Introduction

Students will be able to develop their skills and knowledge in Introduction to Software Engineering, with this prestigious program carefully designed by professionals with extensive experience in the sector. You will learn the basics of software engineering and modeling, delving into the main processes and concepts. All this, in a practical and rigorous way, completely online.







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*This Postgraduate Certificate will allow you to update your knowledge in Introduction to Software Engineering in a practical way, 100% online in a practical way, 100% online, without renouncing the maximum educational rigor”*

This program is aimed at those people interested in reaching a higher level of knowledge in Introduction to Software Engineering. 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 program will prepare scientifically and technologically, as well as to develop the professional practice of software engineering, with a transversal and versatile approach adapted to the new technologies and innovations in this field. Students will gain extensive knowledge in Introduction to Software Engineering from professionals in the field.

The students will be able to take the opportunity and study this program in a 100% online format, without neglecting their obligations.

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

- ◆ Development of 100 simulated scenarios presented by experts in Knowledge Engineering Software Development
- ◆ The graphic, schematic and practical contents with which they are conceived provide scientific and practical information on Introduction of the Engineering of the Software
- ◆ News on the latest developments in Knowledge Engineering Software Introduction
- ◆ It contains practical exercises where the self-assessment process can be carried out to improve learning
- ◆ Interactive learning system based on the 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 latest techniques and strategies with this program and achieve the success as an Computer Engineer”*

“*Learn about Introduction to Software Engineering with this intensive program, from the comfort of your home”*

*Make the most of the latest educational technology to update on Software Engineering without leaving home.*

*Learn about the latest techniques in Introduction to Software Engineering from experts in the field.*

It includes in its teaching staff professionals belonging to the field of education, who bring to this program their work experience, in addition to recognized specialists belonging to reference societies and prestigious universities.


Thanks to its multimedia content developed with the latest educational technology, this Postgraduate Certificate will allow the professional a situated and contextual learning, that is to say, a simulated environment that will provide an immersive learning programmed to learn in real situations.

This program is designed around Problem-Based Learning, whereby the students must try to solve the different professional practice situations that arise throughout the program. To do so, the professional will be assisted by an innovative interactive video system created by recognized experts in Introduction to Software Engineering with extensive teaching experience.



# 02 Objectives

The objective of this program is to provide IT professionals with the knowledge and skills necessary to carry out 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.

A hand is pointing at a screen displaying PHP code. The code is highlighted in yellow and green. The background is dark with a teal diagonal overlay on the left side.

```
if($_GET[type]==1)
    = "foto-galerija.php?t
<div id="left_sidebar">
|
|   <div id="left_ico">
|   <p <?if($_COOKIE['la
|
| <?
77 if($_COOKIE['lang'] == 'eng') {
78     echo "Wood-frame houses";
```



```
!!$_GET[type]] echo "success";  
type=1{text_margin}>  
</div>  
ang'] == 'rus') est
```

“

*Achieve the level of knowledge you desire and master the fundamental concepts in Introduction to Software Engineering with this high-level educational program”*



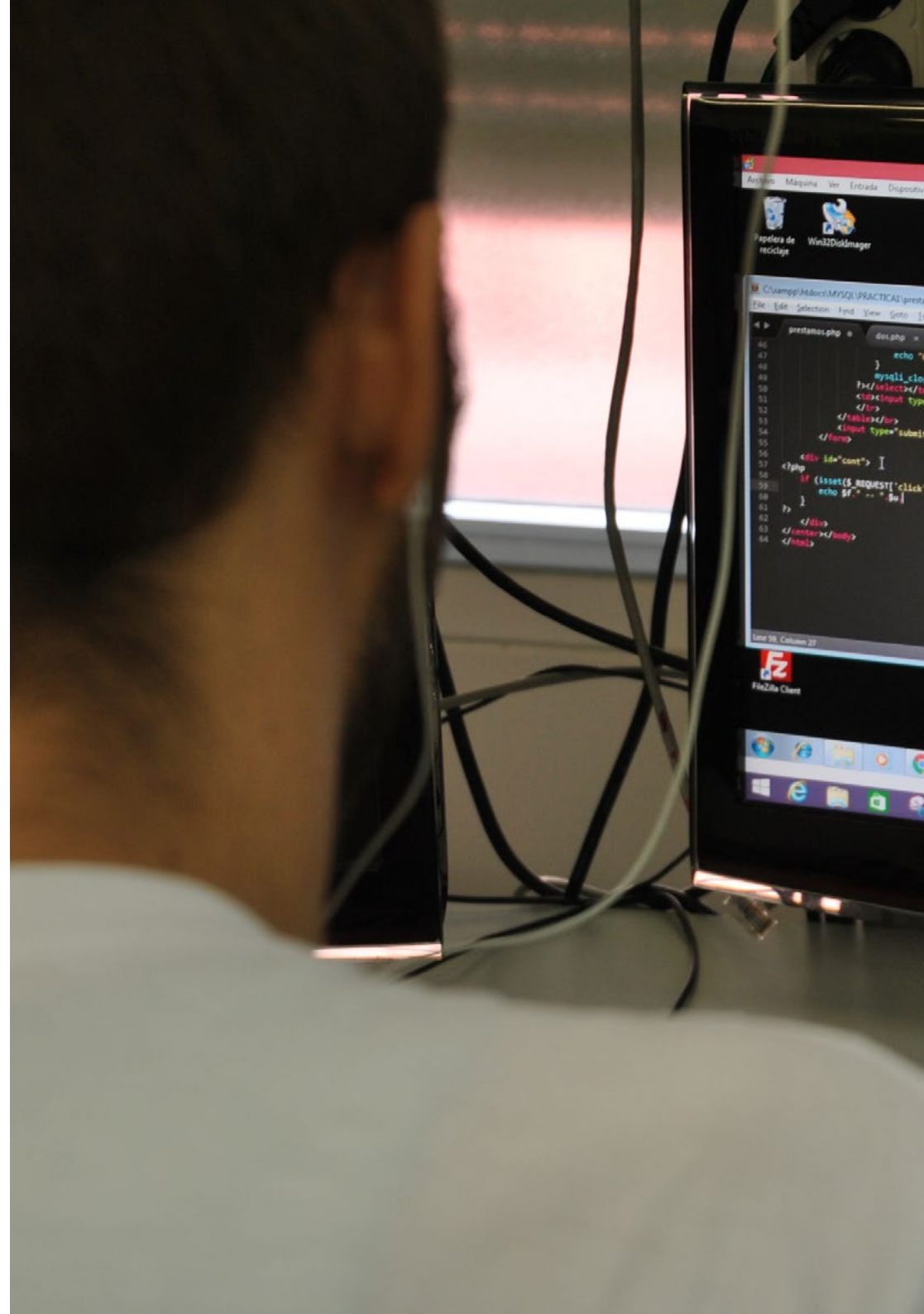
## General Objectives

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- ◆ Provide scientific and technological development, as well as preparation for professional practice in Computing and Management, all with a cross-disciplinary and versatile course in line with new technologies and innovations in this field
- ◆ Obtain wide knowledge in the field of software engineering, structure of computation and in Introduction to Software Engineering including the mathematical, statistical and physical basis essential in engineering



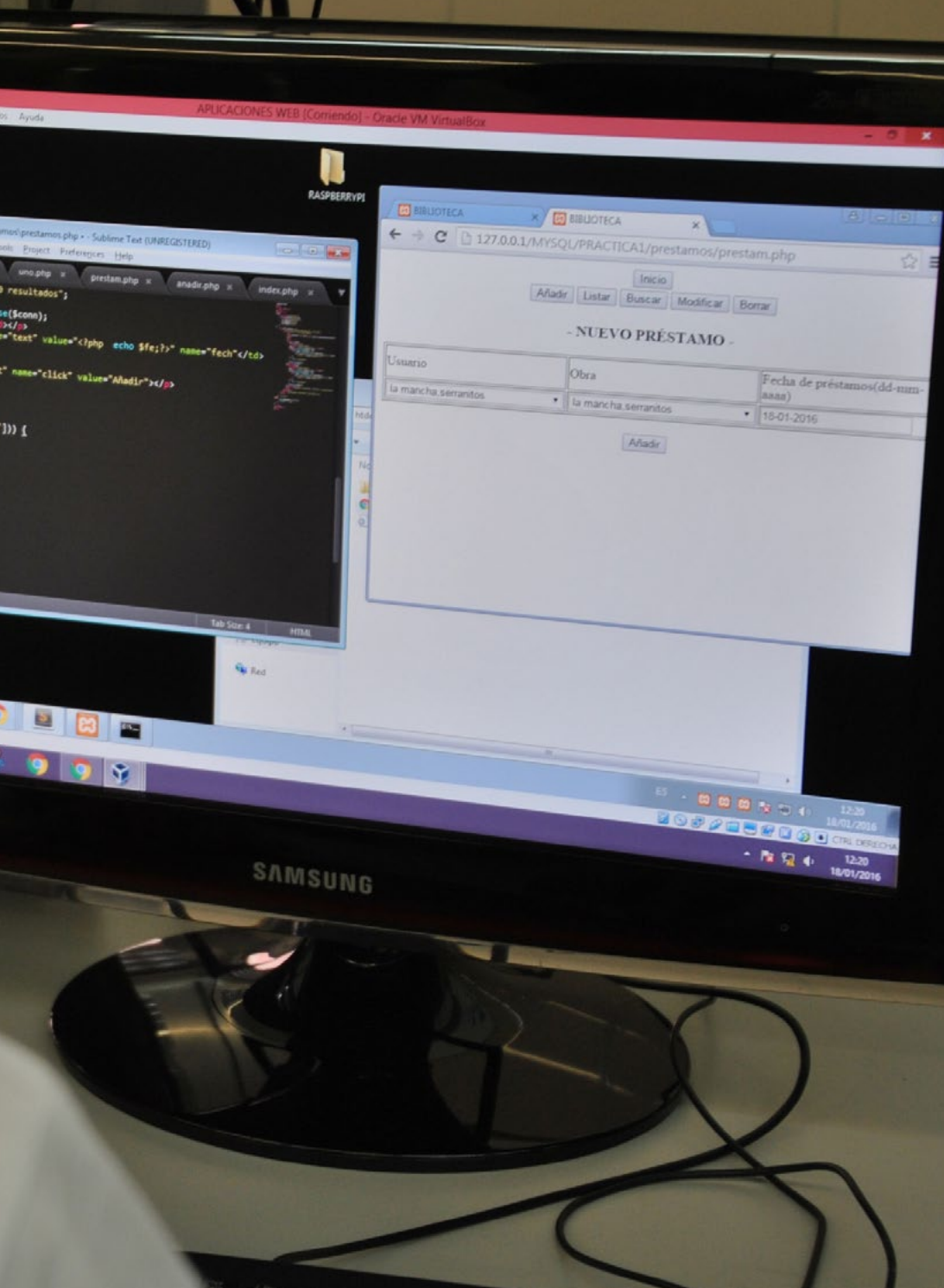
*Enroll in the best program in Introduction to Software Engineering of the university scenario today"*





## Specific Objectives

- ◆ Lay the foundations of software engineering and modeling, learning the main processes and concepts
- ◆ Understand the software process and the different models for its development including agile technologies
- ◆ Understand requirements engineering, their development, elaboration, negotiation and validation
- ◆ Learn the modeling of requirements and the different elements such as scenarios, information, analysis classes, flow, behavior and patterns
- ◆ Understand the concepts and processes of software design, learning also about architecture design and about component-level and pattern-based design
- ◆ Know the main standards related to software quality and project management





# 03

## Structure and Content

The structure of the contents has been designed by a team of IT Engineering professionals, aware of the relevance of current education to delve into this field of knowledge, in order to humanistically enrich the student and raise the level of knowledge in Introduction to Software Engineering through the latest educational technologies available.







*The Postgraduate Certificate from Introduction to Software Engineering contains the most complete and up-to-date program of the market*

## Module 1. Introduction to Software Engineering

- 1.1. Introduction to Software Engineering and Modeling
  - 1.1.1. The Nature of Software
  - 1.1.2. The Unique Nature of Webapps
  - 1.1.3. Software Engineering
  - 1.1.4. The Software Process
  - 1.1.5. Software Engineering Practice
  - 1.1.6. Software Myths
  - 1.1.7. How It All Begins
  - 1.1.8. Object-Oriented Concepts
  - 1.1.9. Introduction to UML
- 1.2. The Software Process
  - 1.2.1. A General Process Model
  - 1.2.2. Prescriptive Process Models
  - 1.2.3. Specialized Process Models
  - 1.2.4. The Unified Process
  - 1.2.5. Personal and Team Process Models
  - 1.2.6. What is Agility?
  - 1.2.7. What is an Agile Process?
  - 1.2.8. Scrum
  - 1.2.9. Agile Process Toolkit
- 1.3. Principles Guiding Software Engineering Practice
  - 1.3.1. Principles Guiding the Process
  - 1.3.2. Principles Guiding the Practice
  - 1.3.3. Principles of Communication
  - 1.3.4. Planning Principles
  - 1.3.5. Modeling Principles
  - 1.3.6. Construction Principles
  - 1.3.7. Deployment Principles



- 1.4. Understanding the Requirements
  - 1.4.1. Requirements Engineering
  - 1.4.2. Establish the Basis
  - 1.4.3. Inquiry of Requirements
  - 1.4.4. Development of Cases Studies
  - 1.4.5. Elaboration of the Requirements Model
  - 1.4.6. Negotiation of Requirements
  - 1.4.7. Validation of Requirements
- 1.5. Requirements Modeling: Scenarios, Information and Analysis Classes
  - 1.5.1. Analysis of Requirements
  - 1.5.2. Scenario-Based Modeling
  - 1.5.3. UML Models that provide the Case Study
  - 1.5.4. Data Modeling Concepts
  - 1.5.5. Class-Based Modeling
  - 1.5.6. Class Diagrams
- 1.6. Requirements Modeling: Flow, Behavior and Patterns
  - 1.6.1. Requirements that Shape Strategies
  - 1.6.2. Flow-Oriented Modeling
  - 1.6.3. Status Diagrams
  - 1.6.4. Creation of a Behavioral Model
  - 1.6.5. Sequence Diagrams
  - 1.6.6. Communication Diagrams
  - 1.6.7. Patterns for Requirements Modeling
- 1.7. Design Concepts
  - 1.7.1. Design in the Software Engineering Context
  - 1.7.2. The Design Process
  - 1.7.3. Design Concepts
  - 1.7.4. Object-Oriented Design Concepts
  - 1.7.5. Model of the Design
- 1.8. Designing the Architecture:
  - 1.8.1. Software Architecture
  - 1.8.2. Architectural Genres
  - 1.8.3. Architectural Styles
  - 1.8.4. Architectural Design
  - 1.8.5. Evolution of Alternative Designs for Architecture
  - 1.8.6. Mapping the Architecture Using the Data Flow
- 1.9. Component-Level and Pattern-Based Design
  - 1.9.1. What is a Component?
  - 1.9.2. Class-Based Component Design
  - 1.9.3. Realization of the Design at the Component Level
  - 1.9.4. Design of Traditional Components
  - 1.9.5. Component-Based Development
  - 1.9.6. Design Patterns
  - 1.9.7. Pattern-Based Software Design
  - 1.9.8. Architectural Patterns
  - 1.9.9. Design Patterns at the Component Level
  - 1.9.10. User Interface Design Patterns
- 1.10. Software Quality and Project Management
  - 1.10.1. Quality
    - 1.10.1. Software Quality
    - 1.10.2. The Software Quality Dilemma
    - 1.10.3. Achieving Software Quality
    - 1.10.4. Software Quality Assurance
    - 1.10.5. The Administrative Spectrum
    - 1.10.6. The Staff
    - 1.10.7. The product
    - 1.10.8. The Process
    - 1.10.9. The Project
    - 1.10.10. Principles and Practices



# 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 Software Engineering 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 Postgraduate Certificate without having to travel or fill out laborious paperwork”*

The **Postgraduate Certificate in Introduction to Software Engineering** 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 Introduction to Software Engineering**

Official N° of Hours: **150 h.**



\*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.

future

health confidence people

education information tutors

guarantee accreditation teaching

institutions technology learning

community commitment

personalized service innovation

knowledge present

online training

development language

virtual classroom

**tech** technological  
university

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