

# Postgraduate Certificate Testing in Artificial Intelligence Applications



## Postgraduate Certificate Testing in Artificial Intelligence Applications

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

Website: [www.techtute.com/pk/artificial-intelligence/postgraduate-certificate/testing-artificial-intelligence-applications](http://www.techtute.com/pk/artificial-intelligence/postgraduate-certificate/testing-artificial-intelligence-applications)

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# 01

# Introduction

Technological advances in the IT field have served to enrich consumers' digital experiences. One example is *Mobile Testing* using Artificial Intelligence (AI). Thanks to this mobile application testing process, the quality of tests on devices such as *smartphones* is optimized. It also generates multiple benefits for experts, including faster testing. In addition, these automated tests are useful for programmers to detect problems early in the development cycle. As a result, they can correct bugs before the products reach end users. In this context, TECH launches a pioneering 100% online program that delves into AI for QA *Testing*.





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*You will detect the different bugs to ensure the quality and proper functioning of mobile applications thanks to this 100% online program"*

When designing mobile applications, specialists must keep in mind the *Testing* lifecycle. This alludes to the different phases that make up the planning, design, execution and monitoring of tests during the development of assets. In order to improve the efficiency and quality of these procedures, IT experts take advantage of Machine Learning tools. In this sense, AI improves every activity by speeding up *ttesting*, automating repetitive tasks and providing additional *insights* for informed decision making in mobile application development.

To optimize these procedures, TECH has implemented an advanced Postgraduate Certificate focused on automated test creation through AI. Developed by an experienced teaching staff, the curriculum will address *Test Cases* and bug detection in detail. The syllabus will also provide the keys to create the most effective test plans, which will help students to develop the most innovative mobile applications in the telecommunications market. The didactic materials will also provide students with the most modern Machine Learning tools for Web *Testing*. Moreover, the program will real cases and by solving complex situations in simulated learning environments. In addition, experts will be able to individually plan their schedules and educational timetables.

Thanks to the fact that this Postgraduate Certificate is taught in a 100% online mode, computer scientists will have the opportunity to update their knowledge in the field of *Testing* in AI Applications without the need to make daily trips to an academic center. In addition, they will have at their disposal a wide variety of didactic resources in multimedia supports such as complementary readings or interactive summaries. It should be noted that the university program is based on the *Relearning* teaching system, of which TECH is a pioneer. This method consists of reiterating the key aspects of the syllabus in a natural and progressive way to ensure that they remain in the student's mind.

This **Postgraduate Certificate in Testing in Artificial Intelligence Applications** contains the most complete and up-to-date program on the market. The most important features include:

- ♦ The development of practical cases presented by experts in Artificial Intelligence 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
- ♦ Its special emphasis on innovative methodologies
- ♦ Theoretical lessons, questions to the expert, debate forums on controversial topics, and individual reflection assignments
- ♦ Content that is accessible from any fixed or portable device with an Internet connection



*You will design innovative and creative projects adapted to the requirements of a growing technological sector"*

“

*You will become an API Testing specialist and evaluate the functionality, performance and security of Application Programming Interface tests! ”*

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

The multimedia content, developed with the latest educational technology, will provide the professional with situated and contextual learning, i.e., a simulated environment that will provide immersive education programmed to learn in real situations.

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

*You will create test plans aimed at establishing sound strategies, verifying that programs are properly executed prior to market launch.*

*Thanks to the Relearning system used by TECH you will reduce the long hours of study and memorization.*





# 02

## Objectives

After this immersive learning experience, graduates will develop skills to design robust test plans. As such, professionals will cover different testing typologies and ensure *software* quality at all times. In sync with this, students will elaborate automated tests effectively, especially in web and mobile environments, integrating AI tools to improve process optimization. Similarly, computer scientists will master more advanced QA tools that are powered by AI. This will allow them more efficient bug detection and continuous *software* improvement.





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*You will delve into the testing lifecycle, from the creation of test cases to the detection of bugs. And all in a convenient 100% online format!”*



## General Objectives

- ♦ Develop skills to set up and manage efficient development environments, ensuring a solid foundation for the implementation of AI projects
- ♦ Acquire skills in planning, executing and automating quality tests, incorporating AI tools for *bug*detection and remediation
- ♦ Understand and apply performance, scalability and maintainability principles in the design of large-scale computing systems
- ♦ Become familiar with the most important design patterns and apply them effectively in software architecture



*No rigid schedules or evaluation timelines. That's what this TECH university program is all about!"*







## Specific Objectives

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- ♦ Master principles and techniques for designing computer systems that are scalable and capable of handling large volumes of data
- ♦ Apply advanced skills in the implementation of AI-powered data structures to optimize *software* performance and efficiency
- ♦ Understand and apply secure development practices, with a focus on avoiding vulnerabilities such as injection, to ensure *software* security at the architectural level
- ♦ Generate automated tests, especially in web and mobile environments, integrating AI tools to improve process efficiency
- ♦ Use advanced AI-powered QA tools for more efficient *bug* detection and continuous *software* improvement



# 03

## Course Management

In line with its commitment to offer educational maximum excellence, TECH has a prestigious teaching staff. These specialists have a broad working background, being part of renowned institutions related to telecommunications and technologies. Thanks to this, they are defined by having a deep knowledge of Testing in AI Applications and being up to date with the advances that have taken place in this field during the last decades. In this way, students have the guarantees they need to update their knowledge in a profession that is constantly advancing and offers numerous job opportunities.



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*You will have access to a curriculum designed by a reputable teaching staff, which will guarantee you a successful learning"*

## Management



### Dr. Peralta Martín-Palomino, Arturo

- CEO and CTO at Prometheus Global Solutions
- CTO at Korporate Technologies
- CTO at AI Shepherds GmbH
- Consultant and Strategic Business Advisor at Alliance Medical
- Director of Design and Development at DocPath
- Ph.D. in Psychology from the University of Castilla - La Mancha
- Ph.D. in Economics, Business and Finance from the Camilo José Cela University
- Ph.D. in Psychology from University of Castilla – La Mancha
- Master's in Executive MBA por la Universidad Isabel I
- Master's Degree in Sales and Marketing Management, Isabel I University
- Expert Master's Degree in Big Data by Hadoop Training
- Master's Degree in Advanced Information Technologies from the University of Castilla - la Mancha
- Member of: SMILE Research Group





### **Mr. Castellanos Herreros, Ricardo**

- ♦ Specialist in Computer Systems Engineering
- ♦ *Chief Technology Officer* at OWQLO
- ♦ *Freelance* Technical Consultant
- ♦ Mobile Applications Developer for eDreams, Fnac, Air Europa, Bankia, Cetelem, Banco Santander, Santillana, Groupón and Grupo Planeta
- ♦ Web Developer for Openbank and Banco Santander
- ♦ *Machine Learning Engineer* course at Udacity
- ♦ Technical Engineer in Computer Systems from the University of Castilla la Mancha

# 04

## Structure and Content

This Postgraduate Certificate will guide students through the *Testing* life cycle, starting from the creation of *test cases* to the detection of bugs. In this way, the curriculum will analyze in detail various types of tests, among which functionality, compatibility or performance tests stand out. The syllabus will also delve into time-saving automation. The teaching materials will also explore the use of AI-powered QA tools. Students will acquire a complete vision that will ensure the efficiency and reliability of *software* products.



“

*You will create automated tests  
with Artificial Intelligence to execute  
procedures in an agile and frequent way"*



## Module 1. AI for QA Testing

- 1.1 Testing Life Cycle
  - 1.1.1. Description and Understanding of the Testing Life Cycle in Software Development
  - 1.1.2. Phases of the Testing Life Cycle and Its Importance for Quality Assurance
  - 1.1.3. Integration of Artificial Intelligence in Different Stages of the Testing Life Cycle
  - 1.1.4. Strategies for Continuous Improvement of the Testing Life Cycle using AI
- 1.2. Test Cases and Bug Detection
  - 1.2.1. Effective Test Case Design and Writing in the QA Testing Context
  - 1.2.2. Identification of Bugs and Errors during Test Case Execution
  - 1.2.3. Application of Early Bug Detection Techniques using Static Analysis
  - 1.2.4. Use of Artificial intelligence Tools for the Automatic Identification of Bugs in Test Cases
- 1.3. Types of Testing
  - 1.3.1. Exploration of Different Types of Testing in the QA Domain
  - 1.3.2. Unit, Integration, Functional, and Acceptance Testing: Characteristics and Applications
  - 1.3.3. Strategies for the Selection and Appropriate Combination of Testing Types in AI Projects
  - 1.3.4. Adaptation of Conventional Testing Types to Projects with Artificial Intelligence Components
- 1.4. Creating a Test Plan
  - 1.4.1. Designing and Structuring a Comprehensive Test Plan
  - 1.4.2. Identifying Requirements and Test Scenarios in AI Projects
  - 1.4.3. Strategies for Manual and Automated Test Planning
  - 1.4.4. Continuous Evaluation and Adjustment of the Test Plan as the Project Develops



- 1.5. AI Bug Detection and Reporting
  - 1.5.1. Implementation of Automatic Bug Detection Techniques using Machine Learning Algorithms
  - 1.5.2. Use of Artificial Intelligence Tools for Dynamic Code Analysis in Search of Possible Errors
  - 1.5.3. Strategies for Automatic Generation of Detailed Reports on AI-Detected Bugs
  - 1.5.4. Effective Collaboration between Development and QA Teams in the Management of AI-Detected Bugs
- 1.6. Creation of Automated Testing with AI
  - 1.6.1. Development of Automated Test Scripts for Projects with AI Components
  - 1.6.2. Integration of AI-based Test Automation Tools
  - 1.6.3. Use of Machine Learning Algorithms for Dynamic Generation of Automated Test Cases
  - 1.6.4. Strategies for Efficient Execution and Maintenance of Automated Test Cases in AI Projects
- 1.7. API Testing
  - 1.7.1. Fundamental Concepts of API Testing and Its Importance in QA
  - 1.7.2. Development of Tests for API Verification in Environments with Artificial Intelligence Components
  - 1.7.3. Strategies for Data and Results Validation in API Testing with AI
  - 1.7.4. Use of Specific Tools for API Testing in Artificial Intelligence Projects
- 1.8. AI Tools for Web Testing
  - 1.8.1. Exploring Artificial Intelligence Tools for Test Automation in Web Environments
  - 1.8.2. Integration of Element Recognition and Visual Analysis Technologies in Web Testing
  - 1.8.3. Strategies for Automatic Detection of Changes and Performance Problems in Web Applications using AI
  - 1.8.4. Evaluation of Specific Tools for Improving Efficiency in Web Testing with AI
- 1.9. Mobile Testing Using AI
  - 1.9.1. Development of Testing Strategies for Mobile Applications with Artificial Intelligence Components
  - 1.9.2. Integration of Specific Testing Tools for AI-based Mobile Platforms
  - 1.9.3. Use of Machine Learning Algorithms for the Detection of Performance Problems in Mobile Apps
  - 1.9.4. Strategies for the Validation of Specific Mobile Application Interfaces and Functions using AI
- 1.10. QA Tools with AI
  - 1.10.1. Exploration of QA Tools and Platforms that Incorporate Artificial Intelligence Functionalities
  - 1.10.2. Evaluation of Tools for Efficient Test Management and Execution in AI Projects
  - 1.10.3. Use of Machine Learning Algorithms for Test Case Generation and Optimization
  - 1.10.4. Strategies for Effective Selection and Adoption of QA Tools with AI Capabilities

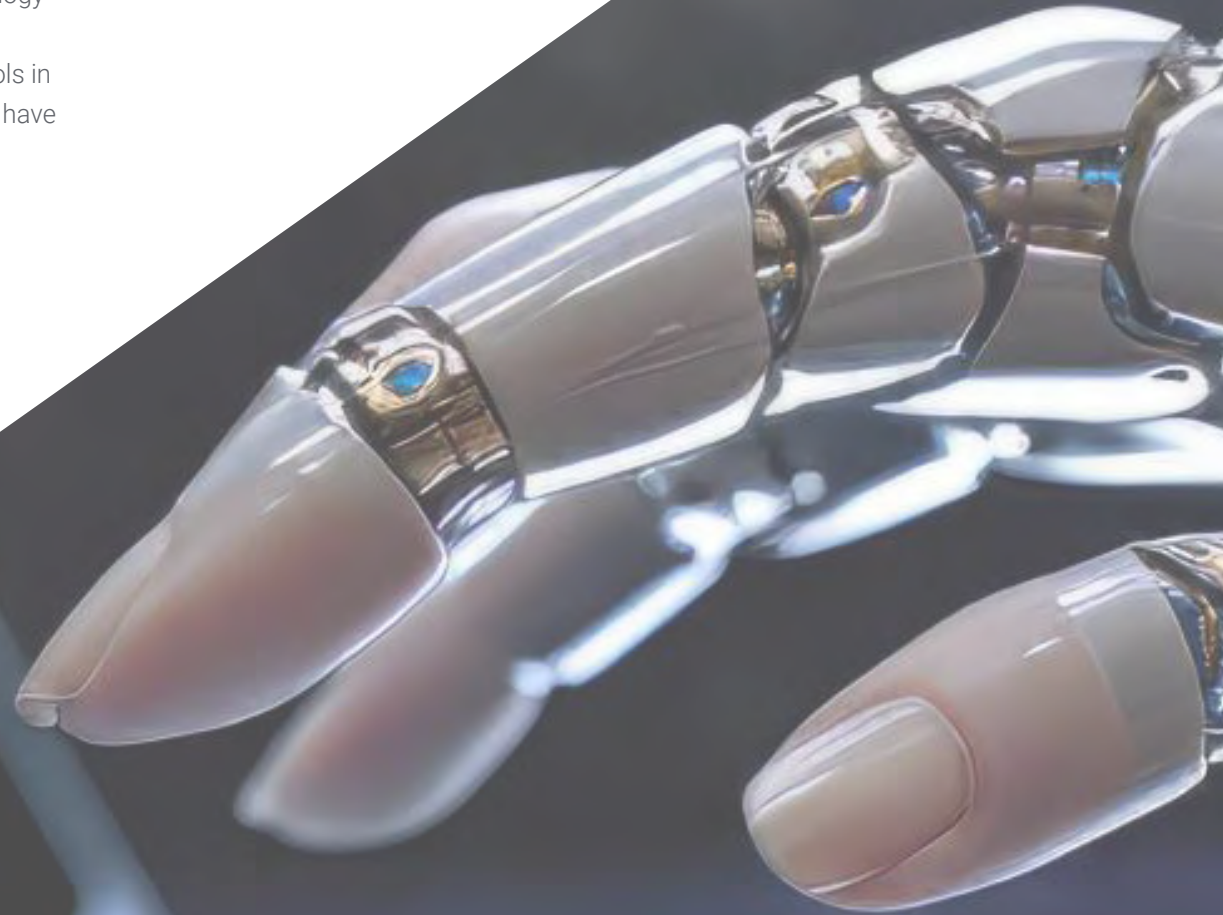


*This university program prepares you for the present and future challenges of Mobile Testing. Bet on TECH and experience immediate career advancement!"*

# 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.







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*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.

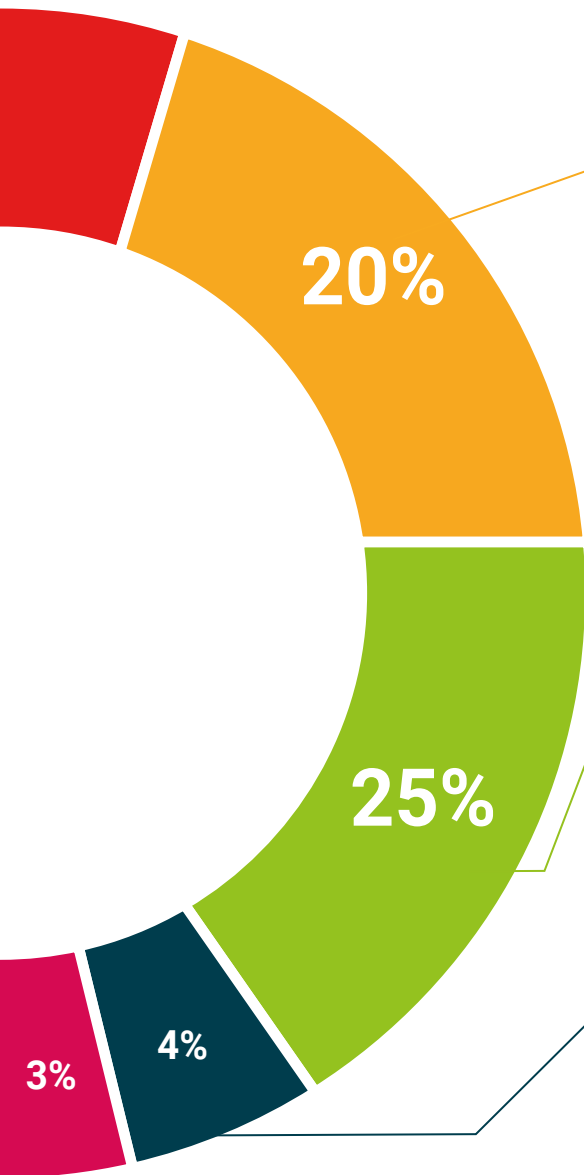


#### Additional Reading

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.



# 06 Certificate

The Postgraduate Certificate in Testing in Artificial Intelligence Applications guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Certificate issued by TECH Technological University.



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



This **Postgraduate Certificate in Testing in Artificial Intelligence Applications** 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 certificate 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 Testing in Artificial Intelligence Applications**

Official N° of Hours: **150 h.**





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