Postgraduate Certificate
Software Testing.
Test Automation
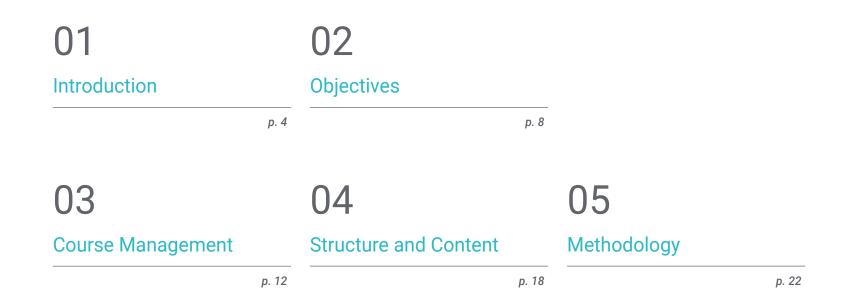
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Postgraduate Certificate
Software Testing.
Test Automation

- » Modality: **online**
- » Duration: **12 weeks**
- » Certificate: **TECH Global University**
- » Accreditation: **6 ECTS**
- » Schedule: **at your own pace**
- » Exams: **online**

Website: **www.techtitute.com/us/information-technology/postgraduate-certificate/software-testing-test-automation**

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01
Introduction

In project development, there are many elements to consider in order to obtain high quality standards. The different types of tests to which software must be subjected, the tools available for this purpose and the implications they have on the software quality program, as well as determining the management methodologies for each case, are essential aspects to be known by every IT professional. According to this need, a specialized program has been created, with the most up-to-date contents, where the professional will understand everything about software testing and test automation. A qualification possible in 12 weeks of study, thanks to the most innovative 100% online methodology implemented by TECH.

Knowing everything about software testing will make you an outstanding professional in your work environment. Enroll now and start the experience"

To obtain efficient software quality levels, a series of parameters must be met from the initial phase of project management. Among them, and perhaps one of the most important is the application of tests that allow to identify the level of risk that the software provides at the time and those that it could imply in the future; all this, of course, with the purpose of providing effective answers to the end user.

The content of this Postgraduate Certificate in Software Testing. Test Automation is approached from a theoretical-practical aspect, to cover the essential normative aspects for the creation of reliable software. Theoretical concepts on testing based on the theory of software engineering and their practical application will be possible thanks to the teaching team that conducts this training, who have chosen a specific syllabus to learn the most up-to-date aspects of the subject.

A study focused on quality aspects, it will delve into the ISO 15504 standard, as well as ISO/IEC 15504. The CMMI Framework, repositories, teams and continuous integration will also be addressed from a practical point of view. This part of the syllabus is essential, since testing, beyond the basic tests that every developer performs, must be done automatically, prior to the integration of new software modules in the team work repository.

On the other hand, this course will focus on two fundamental methodologies in the practice of software development; on the one hand, the Waterfall methodology will be studied, and on the other hand, the Agile methodology; which, when analyzed in their complement, will result in hybrid projects. It will also be possible to analyze the client's vision and define the communication between the client and the provider, which will allow to give a touch of integrality to the professional's educational experience.

All this framed in an online learning system, which will provide you with the flexibility you need to adapt the acquired knowledge to your current performance. With the guidance of professional experts in the field of software development, who have carefully selected all the content and made it available to the student through different multimedia resources, based on the most innovative methodology: Relearning.

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

- Case studies presented by experts in software development
- The graphic, schematic, and practical contents with which they are created, provide practical information on the disciplines that are essential for professional practice
- Practical exercises where the self-assessment process can be carried out to improve learning
- Its special emphasis on innovative methodologies
- Theoretical lessons, questions for experts and individual reflection work
- Content that is accessible from any fixed or portable device with an Internet connection

The Relearning methodology provides a learning system that will allow you to understand the topics more easily. TECH makes it possible. Enroll now and qualify in 12 weeks"

TECH Technological University, always at the forefront with the most in-demand topics in the labor market, offers you this Postgraduate Certificate in Software Testing. Test Automation, so that you can stand out in your professional development"

With this program you will learn to develop the methodologies that are being used in management: Waterfall and Agile.

You will master the necessary procedures to develop hybrid projects.

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

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

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

02
Objectives

The main objective of this Postgraduate Certificate is for the professional to develop the ability to efficiently manage a project, taking into account the software testing and test automation and its importance within the software quality management process. Understanding the methodologies to be implemented in each case, getting to develop hybrid projects thanks to the knowledge of the different methodologies most used today.

Now is your time, TECH Technological University helps you reach your goal with the best content to advance in the development of your profession. Start now"

General Objectives

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

You will understand quality from different perspectives. Analyze the different types of fundamental tests such as load, unit, stress and endurance tests"

Specific Objectives

- Establish the differences between product quality, process quality and quality of use
- Know the ISO/IEC 15504 standard
- Determine the details of CMMI
- Learn the keys to continuous integration, repositories and the repercussions they have on a software development team
- Establish the relevance of incorporating repositories for software projects. Learn how to create them with TFS
- Analyze the different types of fundamental tests, such as load, unit, stress and endurance tests
- Assimilate the importance of software scalability in information systems design and development
- Determine what the Waterfall Methodology consists of
- Delve into the Scrum Methodology
- Establish the differences between Waterfall and Scrum
- Clarify the differences between Waterfall and Scrum methodologies and how the customer sees it
- Browse the Kanban Board
- Approach a same project with Waterfall and Scrum
- Setting up a hybrid project

03

Course Management

The team of professionals that make up the teaching staff and are in charge of this program have a high level of education in the development of IT solutions and software development and research, which provides an unquestionable level of quality to the teaching load. They will be in charge of providing the future graduate with the necessary tools and knowledge related to software testing and test automation, following the most avant-garde methodology implemented by TECH.

Expert teachers and working professionals will share their best experiences to boost your professional development"

International Guest Director

With an extensive professional career of more than 30 years in the technology sector, Daniel St. John is a prestigious **Computer Engineer** highly specialized in S**oftware Quality.** In this same line, he has established himself as a true leader in this field due to his pragmatic approach based on continuous improvement and innovation.

Throughout his career, he has been part of international reference institutions such as **General Electric Healthcare** in Illinois. In this way, his work has focused on optimizing the **digital infrastructures** of organizations with the aim of significantly improving the **user experience**. Thanks to this, multiple patients have enjoyed more personalized and agile care, with faster access to both clinical results and health follow-ups. At the same time, it has implemented technological solutions that have enabled professionals to make more informed **strategic decisions** based on large volumes of data.

He has also balanced this work with the creation of cutting-edge technological projects to maximize the effectiveness of the institutions' operational processes. In this regard, he has led the **digital transformation** of numerous companies belonging to different industries. As such, he has implemented emerging tools such as **Artificial Intelligence, Big Data or Machine Learning** to automate complex daily tasks. As a result, these organizations have managed to adapt to market trends with immediacy and ensure their long-term sustainability.

It is worth noting that Daniel St. John has participated as a speaker at various scientific congresses on a global scale. In this way, he has shared his vast knowledge in areas such as the adoption of **Agile Methodologies, Application Testing** to ensure the reliability of systems or implementation of innovative **Blockchain** techniques that guarantee the protection of confidential data.

Mr. St. John, Daniel

- Director of Software Engineering at General Electric Healthcare of Wisconsin, United States
- Head of Software Engineering at Siemens Healthineers, Illinois
- Director of Software Engineering at Natus Medical Incorporated, Illinois
- Senior Software Engineer at WMS Gaming of Chicago
- Senior Software Engineer at Siemens Medical Solutions, Illinois
- M.S. in Data Strategy and Analytics from Lake Forest Graduate School of Management B.S. in Computer Science from the University of Wisconsin-Parkside
- Illinois Institute of Technology Advisory Board Member
- Certifications in: Python for Data Science, Artificial Intelligence and Development, SAFe SCRUM, and Project Management.

"

Thanks to TECH, you will be able to learn with the best professionals in the world"

Management

Mr. Molina Molina, Jerónimo

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

Professors

Mr. Pi Morell, Oriol

- Hosting and Mail Product Owner. CDMON
- Functional Analyst and Software Engineer in different organizations such as Fihoca, Atmira, CapGemini
- Teacher of different courses such as BPM in CapGemini, ORACLE Forms CapGemini, Business Processes Atmira
- Degree in Technical Engineering in Computer Management from the Autonomous University of Madrid
- Master's Degree in Artificial Intelligence
- Master's Degree in Business Administration MBA
- Master's Degree in Information Systems Management Teaching Experience
- Postgraduate, Postgraduate Design Patterns. Open University of Catalonia

Ms. Martínez Cerrato, Yésica

- Electronic Security Product Technician at Securitas Security Spain
- Business Intelligence Analyst at Ricopia Technologies (Alcalá de Henares) Degree in Electronic Communications Engineering at the Polytechnic School, University of Alcalá
- Responsible for training new recruits on commercial management software (CRM, ERP, INTRANET), product and procedures in Ricopia Technologies (Alcalá de Henares)
- Responsible for training new scholarship holders incorporated to the Computer Classrooms at the University of Alcalá
- Project Manager in the area of Key Accounts Integration at Correos and Telégrafos (Madrid)
- Computer Technician-Responsible for computer classrooms OTEC, University of Alcalá (Alcalá de Henares)
- Computer classes teacher at ASALUMA Association (Alcalá de Henares).
- Scholarship for Training as a Computer Technician in OTEC, University of Alcala (Alcalá de Henares)

Dr. Peralta Martín-Palomino, Arturo

- CEO and CTO at Prometeus Global Solutions
- CTO at Korporate Technologies
- CTO in AI Shephers GmbH
- Doctorate in Psychology from the University of CastillaLa
- PhD in Economics, Business and Finance from the Camilo José Cela University. Outstanding Award in her PhD
- PhD in Psychology, University of CastillaLa Mancha
- Master's Degree in Advanced Information Technologies from the University of Castilla la Mancha
- Master MBA+E (Master's Degree in Business Administration and Organisational Engineering) from the University of Castilla la Mancha
- Associate lecturer, teaching undergraduate and master's degrees in Computer Engineering at the University of Castilla la Mancha
- Professor of the Master in Big Data and Data Science at the International University of Valencia
- Lecturer of the Master's Degree in Industry 4.0 and the Master's Degree in Industrial Design and Product Development
- Member of the SMILe Research Group of the University of Castilla la Mancha

04
Structure and Content

The methodology implemented by TECH Technological University, which is 100% online, allows the diversity of audiovisual content and other formats, which generate in the student a dynamic learning process, based on new models and with quality content. The professional is guaranteed a progressive and natural teaching of the most important terms and concepts about software testing and test automation, with real examples provided by the teaching team. This translates into a first-class academic program, one that is rigorous, exhaustive and adapted to the current reality of IT.

"

It covers repository design, equipment and continuous integration from a practical point of view"

Module 1. Software Testing. Test Automation

1.1.   Software Quality Models
    1.1.1.   Product Quality
    1.1.2.   Process Quality
    1.1.3.   Quality of Use
1.2.   Process Quality
    1.2.1.   Process Quality
    1.2.2.   Maturity Models
    1.2.3.   ISO 15504 Standards
        1.2.3.1. Purposes
        1.2.3.2. Context
        1.2.3.3. Stages
1.3.   ISO/IEC 15504 Standard
    1.3.1.   Process Categories
    1.3.2.   Development Process Example
    1.3.3.   Profile Fragment
    1.3.4.   Stages
1.4.   CMMI (Capability Maturity Model Integration)
    1.4.1.   CMMI Capability Maturity Model Integration
    1.4.2.   Models and Areas. Typology
    1.4.3.   Process Areas
    1.4.4.   Capacity Levels
    1.4.5.   Process Management
    1.4.6.   Project Management
1.5.   Change and Repository Management
    1.5.1.   Software Change Management
        1.5.1.1. Configuration Item. Continuous Integration
        1.5.1.2. Lines
        1.5.1.3. Flowcharts
        1.5.1.4. Branches

    1.5.2.   Repository
        1.5.2.1. Version Control
        1.5.2.2. Work Team and Use of the Repository
        1.5.2.3. Continuous Integration in the Repository
1.6.   Team Foundation Server (TFS)
    1.6.1.   Installation and Configuration
    1.6.2.   Creation of a Team Project
    1.6.3.   Adding Content to Source Code Control
    1.6.4.   TFS on Cloud
1.7.   Testing
    1.7.1.   Motivation for Testing
    1.7.2.   Verification Testing
    1.7.3.   Beta Testing
    1.7.4.   Implementation and Maintenance
1.8.   Load Testing
    1.8.1.   Load Testing
    1.8.2.   LoadView Testing
    1.8.3.   K6 Cloud Testing
    1.8.4.   Loader Testing
1.9.   Unit, Stress and Endurance Tests
    1.9.1.   Reason for Unit Tests
    1.9.2.   Unit Testing Tools
    1.9.3.   Reason for Stress Tests
    1.9.4.   Testing UsingStress Testing
    1.9.5.   Reason for Endurance Tests
    1.9.6.   Tests Using LoadRunner
1.10.   Scalability. Scalable Software Design
    1.10.1.   Scalability and Software Architecture
    1.10.2.   Independence Between Layers
    1.10.3.   Coupling Between Layers Architecture Patterns

Module 2. Software Project Management Methodologies Waterfall Methodology vs Agile Methodology

This is the opportunity you were waiting for. Make up your mind and raise your level of professionalism with this 100% online program"

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.
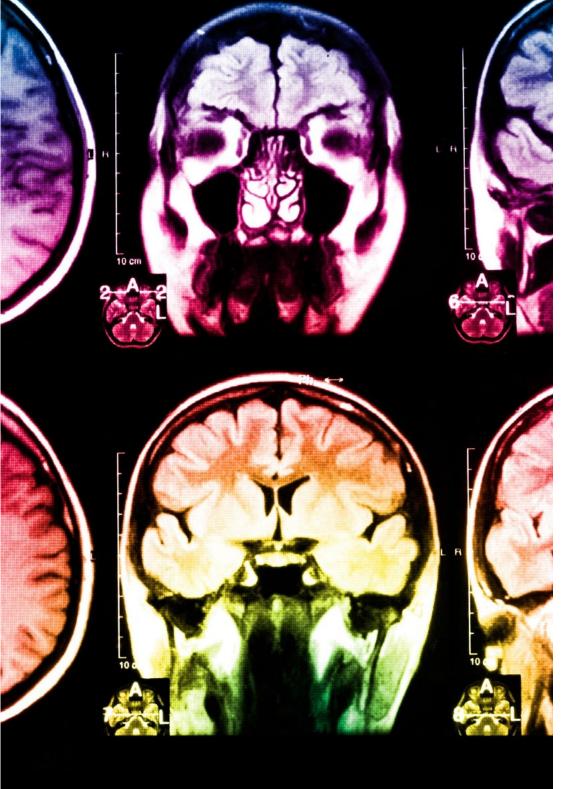
01 learning from evidence

02 relearning from evidence

03 testing

04 learning from an expert

05 neurocognitive context dependent learning

06 Von-Restorff effect

07 case based learning through storytelling

08 competencies testing (retesting)

In our program, learning is not a linear process, but rather a spiral (learn, unlearn, forget, and re-learn). Therefore, we combine each of these elements concentrically. This methodology has trained more than 650,000 university graduates with unprecedented success in fields as diverse as biochemistry, genetics, surgery, international law, management skills, sports science, philosophy, law, engineering, journalism, history, and financial markets and instruments. All this in a highly demanding environment, where the students have a strong socio-economic profile and an average age of 43.5 years.

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

From the latest scientific evidence in the field of neuroscience, not only do we know how to organize information, ideas, images and memories, but we know that the place and context where we have learned something is fundamental for us to be able to remember it and store it in the hippocampus, to retain it in our long-term memory.

In this way, and in what is called neurocognitive context-dependent e-learning, the different elements in our program are connected to the context where the individual carries out their professional activity.

This program offers the best educational material, prepared with professionals in mind:

Study Material

All teaching material is produced by the specialists who teach the course, specifically for the course, so that the teaching content is highly specific and precise.

These contents are then adapted in audiovisual format, to create the TECH online working method. All this, with the latest techniques that offer high-quality pieces in each and every one of the materials that are made available to the student.

Classes

There is scientific evidence suggesting that observing third-party experts can be useful.

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

Practising Skills and Abilities

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

Additional Reading

Recent articles, consensus documents and international guidelines, among others. In TECH's virtual library, students will have access to everything they need to complete their course.

20%

25%

4%

3%

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.

Certificate

The Postgraduate Certificate in Software Testing. Test Automation guarantees students, in addition to the most rigorous and up-to-date 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 private qualification will allow you to obtain an **Postgraduate Certificate in Software Testing. Test Automation** 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 Certificate in Software Testing.Test Automation**

Modality: **online**

Duration: **12 weeks**

Accreditation: **12 ECTS**

tech global university

Mr./Ms. _____ with identification document _____ has successfully passed and obtained the title of:

Postgraduate Certificate in Software Testing.Test Automation

This is a private qualification of 360 hours of duration equivalent to 12 ECTS, with a start date of dd/mm/yyyy and an end date of dd/mm/yyyy.

TECH Global University is a university officially recognized by the Government of Andorra on the 31st of January of 2024, which belongs to the European Higher Education Area (EHEA).

In Andorra la Vella, on the 28th of February of 2024

Dr. Pedro Navarro Illana
Dean

Unique TECH Code: AFWORD23S   techtitute.com/certificates

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

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