



Postgraduate Diploma Test-Driven Design

» Modality: online

» Duration: 6 months

» Certificate: TECH Global University

» Credits: 18 ECTS

» Schedule: at your own pace

» Exams: online

We bsite: www.techtitute.com/us/information-technology/postgraduate-diploma/postgraduate-diploma-test-driven-design and the state of the control of the co

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tech 06 | Introduction

An IT professional must be focused on the quality of their projects. To achieve this optimally and in the required timeframe, they must be familiar with the necessary methodologies. Eliminating technical debt in present and future developments should be the goal, since for some years now projects have been developed very quickly, with the objective of closing them with the client under price and deadline criteria, instead of considering a quality approach. This has generated many problems, which, far from providing a quality approach, resulted in major losses.

This refresher program demonstrates the importance of Test-Driven Design to develop quality software, providing the professional with all the necessary tools. From knowing the phases in which a project is broken down and knowing the requirements to be met in order to decide which methodology to work with, generating an expert criterion.

This way, the different types of tests to which the software must be submitted, the tools available for it and the implications that these have in the software quality program are analyzed. Theoretical and practical approach, covering the essential regulatory aspects for the creation of reliable software, theoretical concepts on testing based on the theory of software engineering and the practical application of the same. Contents focused on quality aspects and complementing other standards, going deeper into the ISO 15504 standard, as well as ISO/IEC 15504.

It also delves into how the Scrum methodology works, its famous manifesto and how it was created as an alternative to the way of working in Waterfall. It discusses how a Kanban board works, what it consists of, how it is used and how it would be applied in a small test project. Taking into account the vision from the point of view of the client who has requested the project, studying, likewise, the communication between client-supplier.

To make this possible, TECH Global University has assembled a group of experts in the area that will transmit the most up to date knowledge and experience. There will be 3 modules divided into different units and subunits, which will make it possible to learn in a maximum of 6 months. Through a modern virtual campus with theoretical and practical content, distributed in different formats. Implementing the Relearning methodology, which facilitates memorization and learning in an agile and efficient way.

The **Postgraduate Diploma in Test-Driven Design** contains the most complete and up-to-date educational program on the market. The most important features include:

- The development of case studies presented by experts in software development
- 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 self assessment can be used 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 Postgraduate Diploma in Test-Driven Design analyzes the criteria underlying software quality. Broaden your expertise. Enroll now"



This program allows you to orient your professional profile towards that specialization that will make you unique in your environment. Standing out for the most innovative practices and know how"

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

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.

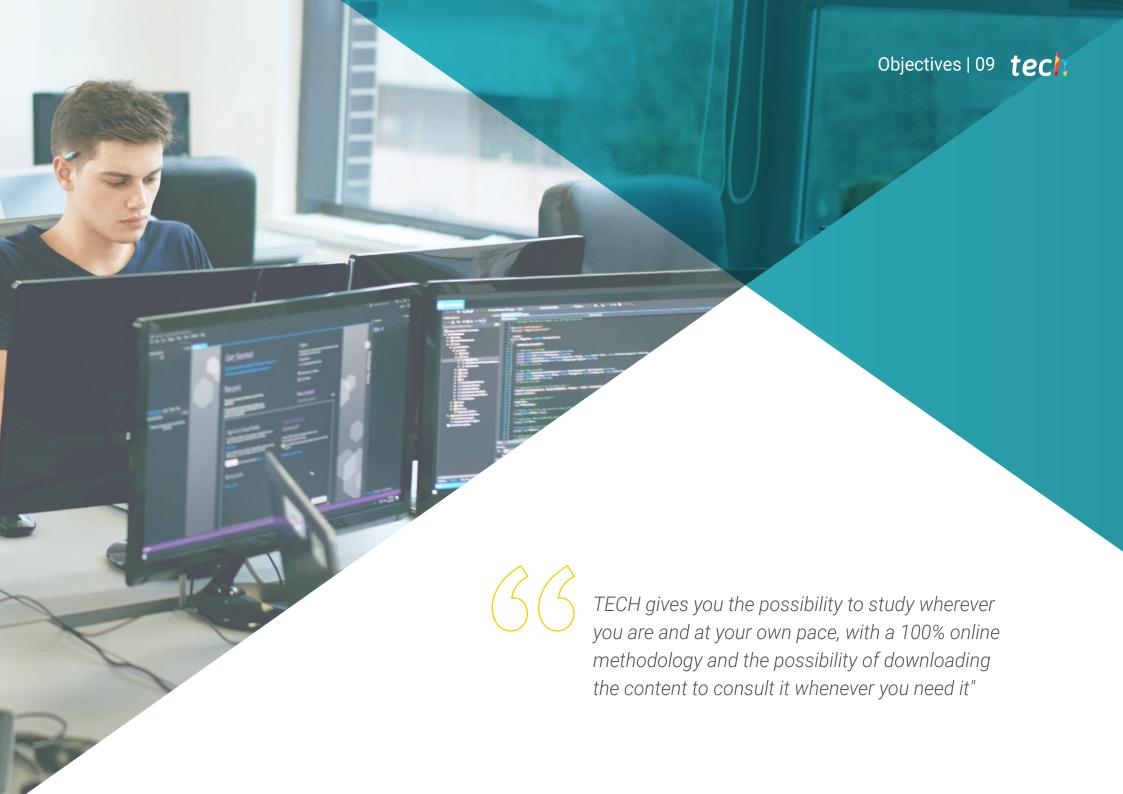
This program is designed around Problem Based Learning, whereby the professional must try to solve the different professional practice situations that arise during the academic year. For this purpose, the student will be assisted by an innovative interactive video system created by renowned and experienced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

You will understand the importance of software testing and test automation within the development process of a project.

Learn all about project management, analyze the different phases into which it is broken down and discuss the process of deciding on the methodology to be used.





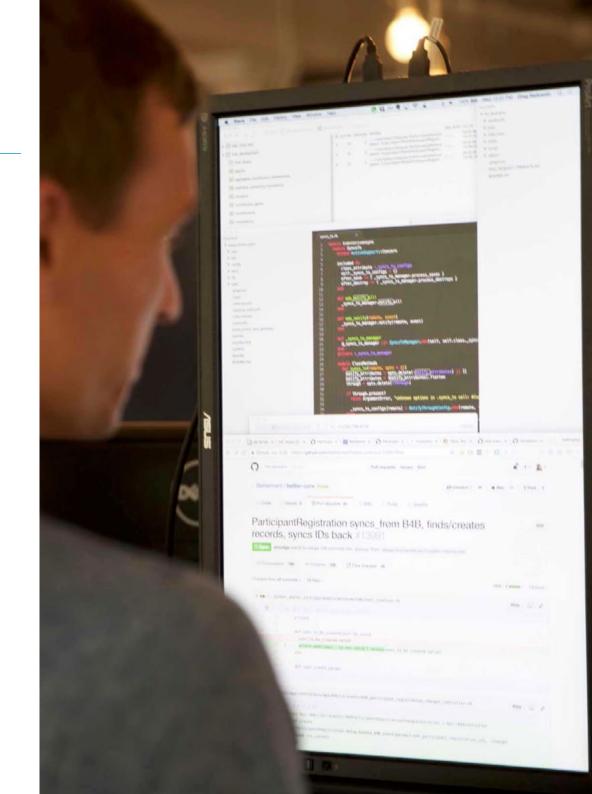


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General Objectives

- Develop the criteria, tasks and advanced methodologies to understand the relevance of quality oriented work
- Develop specialized knowledge on Waterfall and Agile Methodology
- Analyze the key factors in the quality of a software project
- Develop the relevant regulatory aspects
- Determine how to automate tests
- Develop specialized project management expertise





Module 1. Software Project Development. Functional and technical documentation

- Determine the influence of project management on quality
- Develop the different phases of a project
- Differentiate the quality concepts inherent to functional and technical documentation
- Analyze the requirements gathering phase, the analysis phase, team management and the construction phase
- Establish the different software project management methodologies
- Generate criteria to decide which is the most appropriate methodology according to the type of project

Module 2. Software Testing. Test automation

- 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 TES
- 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

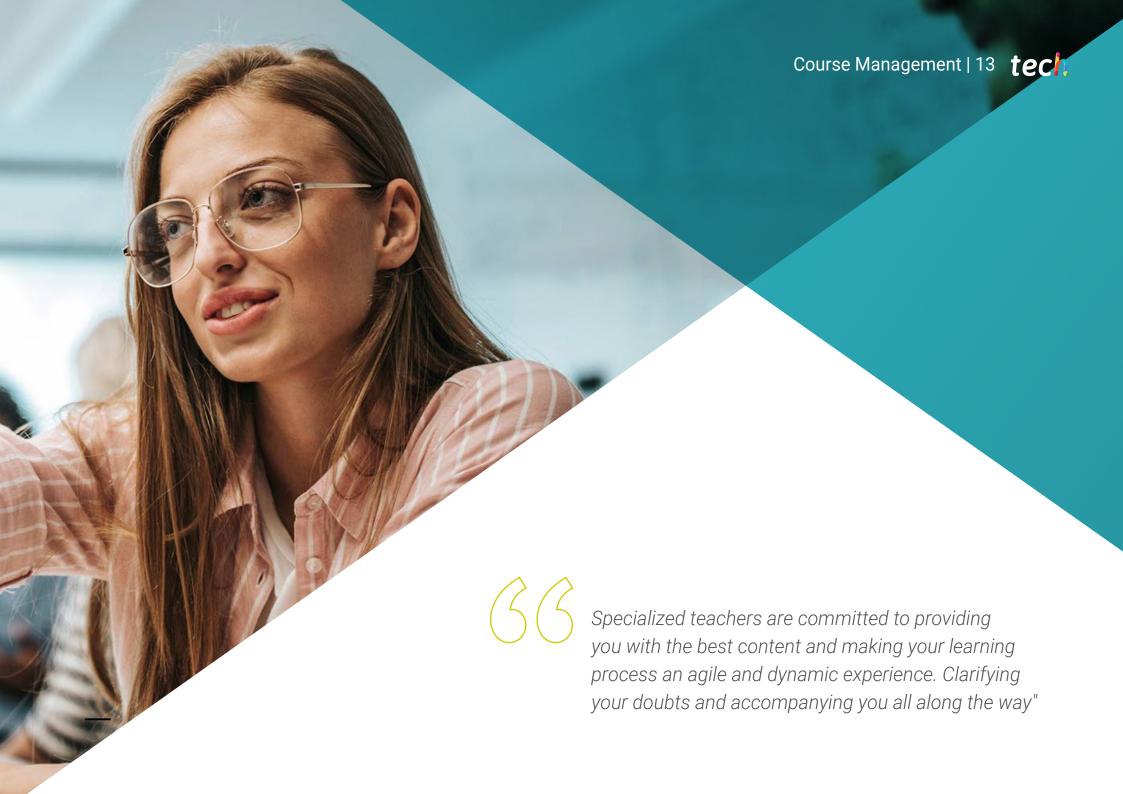
Module 3. Software Project Management Methodologies Waterfall Methodology vs Agile Methodology

- 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
- Explore the Kanban Board
- Approach a same project with Waterfall and Scrum
- Setting up a hybrid project



Learn about TECH's unique stateof-the-art methodology, which allows you to learn quickly and efficiently. Get your qualification in 6 months with this Postgraduate Diploma in Test-Driven Design"





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 **Software 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"

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Management



Mr. Molina Molina, Jerónimo

- · Al 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

Professors

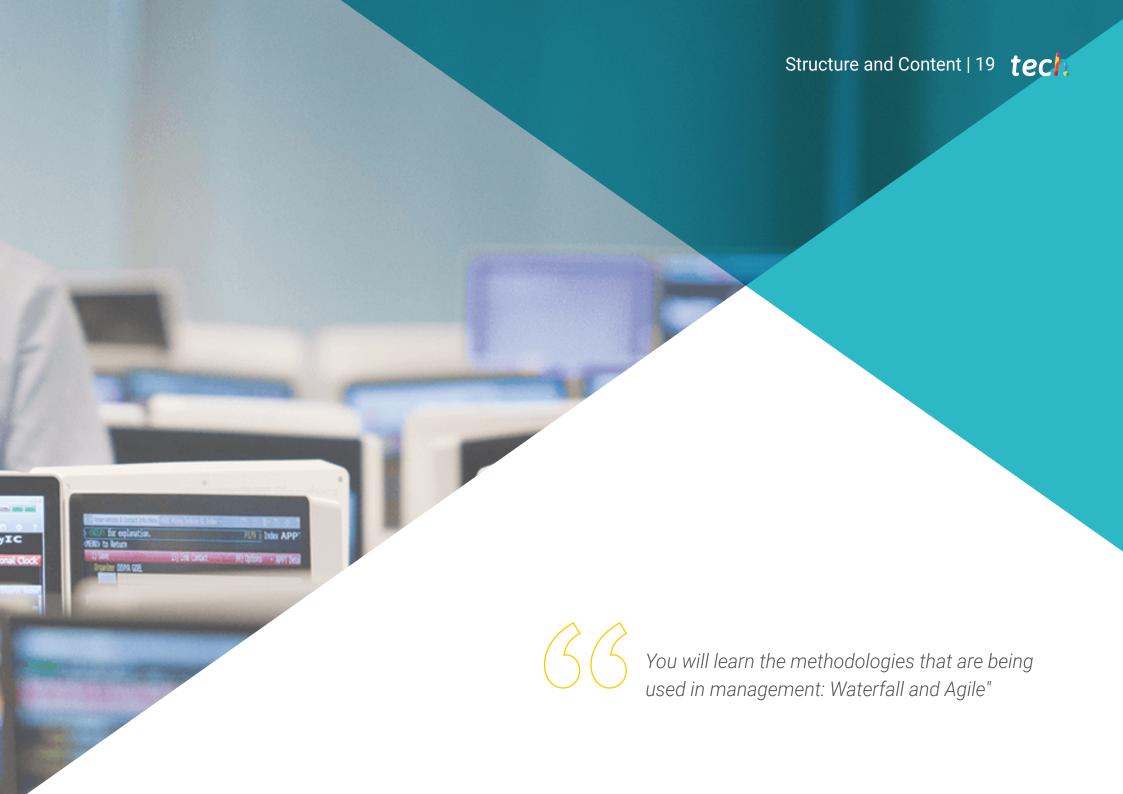
Ms. Martínez Cerrato, Yésica

- 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 Al Shephers GmbH
- Doctorate in Psychology from the University of La Castilla
- PhD in Economics, Business and Finance from the Camilo José Cela University Outstanding Award in her PhD
- PhD in Psychology, University of Castilla La 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





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Module 1. Software Project Development. Functional and Technical Documentation

- 1.1. Project Management
 - 1.1.1. Project Management in Software Quality
 - 1.1.2. Project Management Advantages
 - 1.1.3. Project Management Typology
- 1.2. Methodology in Project Management
 - 1.2.1. Methodology in Project Management
 - 1.2.2. Project Methodologies. Typology
 - 1.2.3. Methodologies in Project Management. Application
- 1.3. Requirements Identification Phase
 - 1.3.1. Identification of Project Requirements
 - 1.3.2. Management of Project Meetings
 - 1.3.3. Documentation to Be Provided
- 1.4. Models
 - 1.4.1. Initial Phase
 - 1.4.2. Analysis Phase
 - 1.4.3. Construction Phase
 - 1.4.4. Testing Phase
 - 1.4.5. Delivery
- 1.5. Data Model to Be Used
 - 1.5.1. Determination of the New Data Model
 - 1.5.2. Identification of the Data Migration Plan
 - 1.5.3. Data Set
- 1.6. Impact on Other Projects
 - 1.6.1. Impact of a Project. Examples:
 - 1.6.2. Risk in the Project
 - 1.6.3. Risk Management

- 1.7. MUST of the Project
 - 1.7.1. MUST of the Project
 - 1.7.2. Identification of Project MUST
 - 1.7.3. Identification of the Execution Points for Project Delivery
- 1.8. The Project Construction Team
 - 1.8.1. Roles to be Involved According to the Project
 - 1.8.2. Contact with HR for Recruitment
 - 1.8.3. Project Deliverables and Schedule
- 1.9. Technical Aspects of a Software Project
 - 1.9.1. Project Architect. Technical Aspects
 - 1.9.2. Technical Leaders
 - 1.9.3. Construction of the Project Software
 - 1.9.4. Code Quality Assessment, Sonar
- 1.10. Project Deliverables
 - 1.10.1. Functional Analysis
 - 1.10.2. Data Model
 - 1.10.3. State Diagram
 - 1.10.4. Technical Documentation

Module 2. Software Testing. Test Automation

- 2.1. Software Quality Models
 - 2.1.1. Product Quality
 - 2.1.2. Process Quality
 - 2.1.3. Quality of Use
- 2.2. Process Quality
 - 2.2.1. Process Quality
 - 2.2.2. Maturity Models
 - 2.2.3. ISO 15504 Standards
 - 2.2.3.1. Purposes
 - 2.2.3.2. Context
 - 2.2.3.3. Stages
- 2.3. ISO/IEC 15504 Standard
 - 2.3.1. Process Categories
 - 2.3.2. Development Process Example
 - 2.3.3. Profile Fragment
 - 2.3.4. Stages
- 2.4. CMMI (Capability Maturity Model Integration)
 - 2.4.1. CMMI Capability Maturity Model Integration
 - 2.4.2. Models and Areas. Typology
 - 2.4.3 Process Areas
 - 2.4.4. Capacity Levels
 - 2.4.5. Process Management
 - 2.4.6. Project Management
- 2.5. Change and Repository Management
 - 2.5.1. Software Change Management
 - 2.5.1.1. Configuration Item. Continuous Integration
 - 2.5.1.2. Lines
 - 2.5.1.3. Flowcharts
 - 2.5.1.4. Branches
 - 2.5.2. Repository
 - 2.5.2.1. Version Control
 - 2.5.2.2. Work Team and Use of the Repository
 - 2.5.2.3. Continuous Integration in the Repository

- 2.6. Team Foundation Server (TFS)
 - 2.6.1. Installation and Configuration
 - 2.6.2. Creation of a Team Project.
 - 2.6.3. Adding Content to Source Code Control
 - 2.6.4. TFS on Cloud
- 2.7. Testing
 - 2.7.1. Motivation for Testing
 - 2.7.2. Verification Testing
 - 2.7.3. Beta Testing
 - 2.7.4. Implementation and Maintenance
- 2.8. Load Testing
 - 2.8.1. Load Testing
 - 2.8.2. LoadView Testing
 - 2.8.3. K6 Cloud Testing
 - 2.8.4. Loader Testing
- 2.9. Unit. Stress and Endurance Tests
 - 2.9.1. Reason for Unit Tests
 - 2.9.2. Unit Testing Tools
 - 2.9.3. Reason for Stress Tests
 - 2.9.4. Testing UsingStress Testing
 - 2.9.5. Reason for Endurance Tests
 - 2.9.6. Tests Using LoadRunner
- 2.10. Scalability. Scalable Software Design
 - 2.10.1. Scalability and Software Architecture
 - 2.10.2. Independence Between Layers
 - 2.10.3. Coupling Between Layers Architecture Patterns

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Module 3. Software Project Management Methodologies Waterfall Methodology vs Agile Methodology

- 3.1. Waterfall Methodology
 - 3.1.1. Waterfall Methodology
 - 3.1.2. Waterfall Methodology Influence on Software Quality
 - 3.1.3. Waterfall Methodology Examples
- 3.2. Agile Methodology
 - 3.2.1. Agile Methodology
 - 3.2.2. Agile Methodology. Influence on Software Quality
 - 3.2.3. Agile Methodology. Examples
- 3.3. Scrum Methodology
 - 3.3.1. Scrum Methodology
 - 3.3.2. Scrum Manifesto
 - 3.3.3. Scrum Application
- 3.4. Kanban Board
 - 3.4.1. Kanban Method
 - 3.4.2. Kanban Board
 - 3.4.3. Kanban Board Application Examples
- 3.5. Waterfall Project Management
 - 3.5.1. Project Phases
 - 3.5.2. Vision in a Waterfall Project
 - 3.5.3. Deliverables to Consider
- 3.6. Project Management in Scrum
 - 3.6.1. Phases in a Scrum Project
 - 3.6.2. Vision in a Scrum Project
 - 3.6.3. Deliverables to Consider
- 3.7. Waterfall vs. Scrum Comparison
 - 3.7.1. Pilot Project Approach
 - 3.7.2. Project Applying Waterfall. Example
 - 3.7.3. Project Applying Scrum. Example





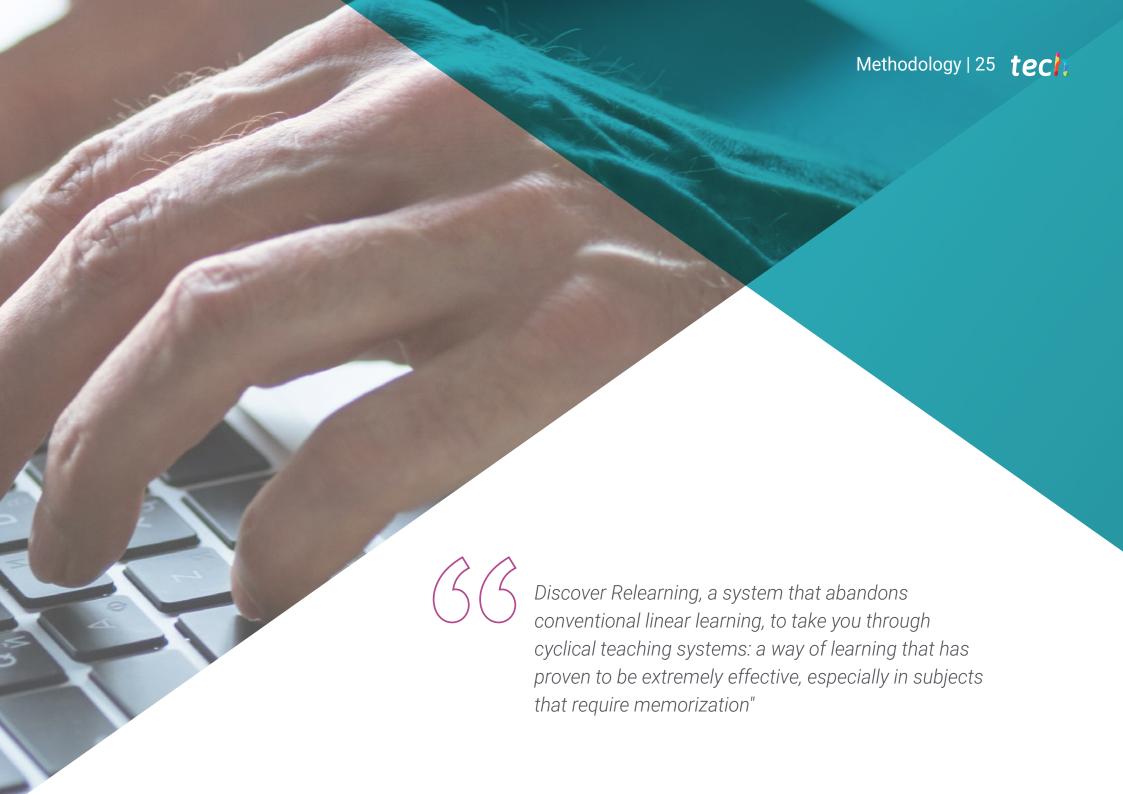
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- 3.8. Customer Vision
 - 3.8.1. Documents in a Waterfall
 - 3.8.2. Documents in a Scrum
 - 3.8.3. Comparison
- 3.9. Kanban Structure
 - 3.9.1. User Stories
 - 3.9.2. Backlog
 - 3.9.3. Kanban Analysis
- 3.10. Hybrid Projects
 - 3.10.1. Project Construction
 - 3.10.2. Project Management
 - 3.10.3. Deliverables to Consider



With the most exclusive content, become an expert in just a few months and give a plus to your professional profile"





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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.



Methodology | 29 tech

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.





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.

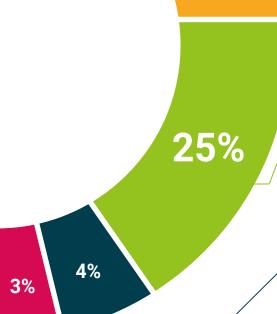


This exclusive educational system for presenting multimedia content was awarded by Microsoft as a "European Success Story".

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.





20%





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This program will allow you to obtain your **Postgraduate Diploma in Test-Driven Design** endorsed by **TECH Global University**, the world's largest online university.

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

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

Title: Postgraduate Diploma in Test-Driven Design

Modality: online

Duration: 6 months

Accreditation: 18 ECTS



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

Postgraduate Diploma in Test-Driven Design

This is a program of 450 hours of duration equivalent to 18 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



^{*}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.

health confidence people

deducation information tutors
guarantee accreditation teaching
institutions technology learning
community commitment



Postgraduate Diploma Test-Driven Design

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- » Credits: 18 ECTS
- » Schedule: at your own pace
- » Exams: online

