

# Postgraduate Certificate Software Quality





## Postgraduate Certificate Software Quality

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

Website: [www.techtitute.com/us/information-technology/postgraduate-certificate/software-quality](http://www.techtitute.com/us/information-technology/postgraduate-certificate/software-quality)

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# 01

# Introduction

Delivering quality projects from a software point of view without technical debt and preventing future risks is the goal of IT specialists. Taking into account the scalability of the project throughout its life cycle requires knowledge focused on quality from a top-down approach. This program covers the criteria, tasks and advanced methodologies to understand the relevance of quality policy-oriented work in software projects. Your study will be completely online and with an innovative approach; supported by the best online study system, implemented by the world's largest online university.





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*Specialize in Software Quality from a technical and management perspective. Graduating in just 6 weeks and online"*

Before launching a digital product and during its development, the correct functioning of the IT systems must be verified. For this purpose, a series of software quality tests must be established, which are in charge of analyzing and identifying faults and errors. These are done with the objective of guaranteeing functionality and efficiency in coherence with the requirements, expectations and needs; taking into account the satisfaction of the end user.

Understand that a few years ago, the development of digital products was done under the premise of fast delivery and without specifying the quality factor. It may lead to an understanding today of the high level of technical debt that exists. This is why professionals should be more focused on obtaining proven levels of long-term uptime and upgradability in all types of software.

This program is integrated by all the necessary factors to achieve projects with quality certification, and so that the professional can boost their career by offering a service that offers confidence and guarantees to their client or employer.

To learn about the methodological, technical and key details in Software Quality; TRL development levels, ISO standards, SEI models and the need to apply quality principles in software are some of the topics studied in this program to deepen in Software Quality.

The online format of the program provides flexibility to the student, being able to continue with their daily life and make the most of the digital devices they have at hand for their studies; they can even download the material and consult it when they need it most. You will feel accompanied at all times, since the teaching team is present, through the multimedia resources that make up the TECH Technological University platform.

This **Postgraduate Certificate in Software Quality** contains the most complete and up-to-date educational program on the market. Its most notable features are:

- ♦ The development of case studies presented by experts in 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 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



*At TECH, you set your own study schedule. Its 100% online system allows you to adapt it to your daily life"*

“

*TECH offers you the most innovative educational and technological resources. Enroll now and reach the goal in 6 weeks”*

*Delve into the ISO quality standards applied both in general and in specific parts of the system.*

*You will see remarkable results by applying quality processes to your software developments.*

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.



# 02 Objectives

The main objective of this course is to provide the IT professional with the tools and techniques applied for the correct implementation of Software Quality and to obtain more profitable, long-lasting and scalable projects. This is how the graduate will be able to profile their current performance towards a service of greater prestige and recognition, by providing effective solutions in terms of software development.





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*You will be able to incorporate all the advanced knowledge you will acquire in this Postgraduate Certificate into your daily practice even before you finish it"*



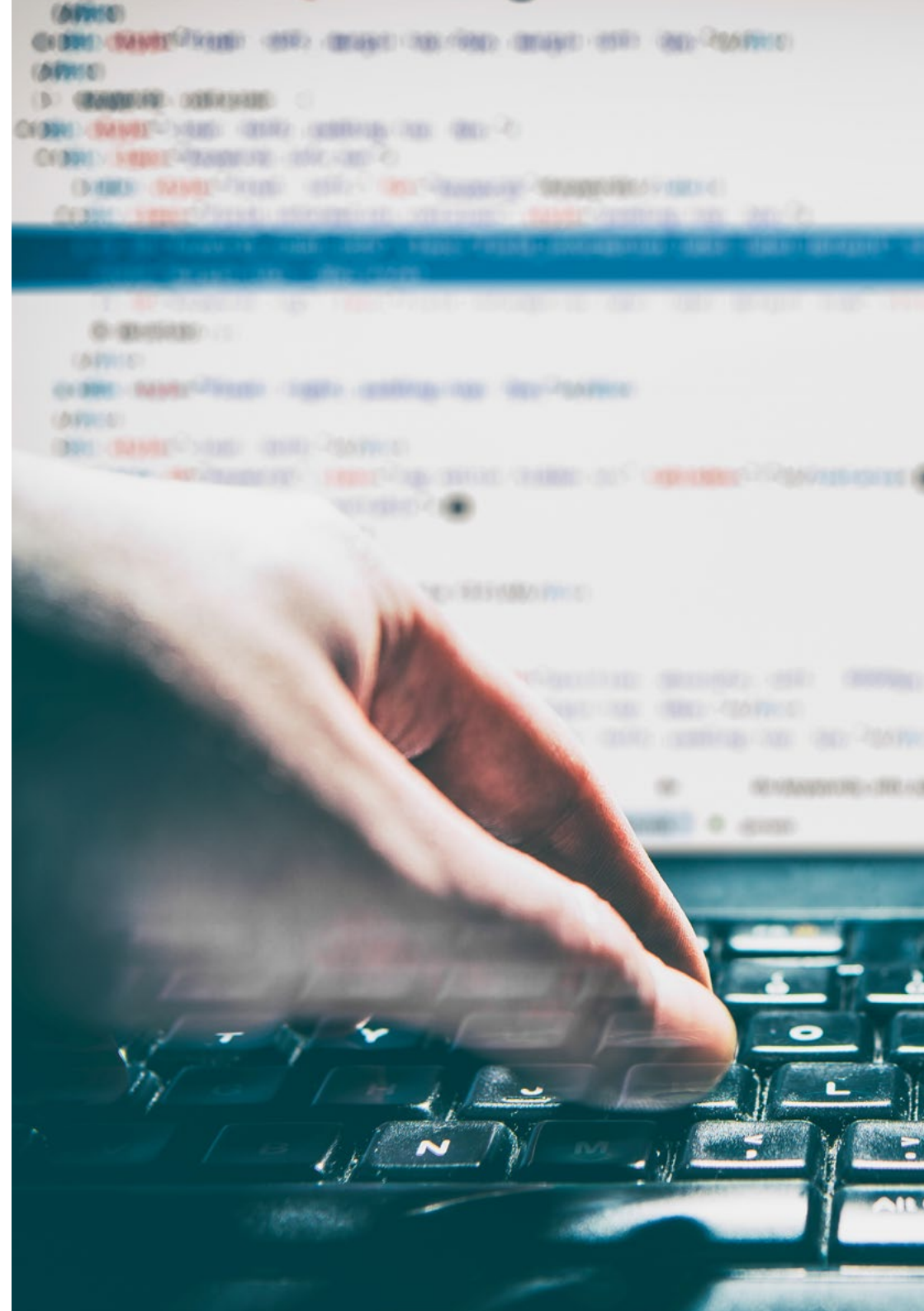
## General Objectives

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- ♦ 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 achieve greater prestige and recognition in your career, thanks to the correct performance and remarkable results in your new projects"*





## Specific Objectives

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- ◆ Develop in a clear and concise way the elements that encompass software quality
- ◆ Apply the models and standards according to system, product and software process
- ◆ Delve into the ISO Quality standards applied both in general and in specific parts of the system
- ◆ Apply the standards according to the scope of the environment
- ◆ Examine the TRL maturity levels and adapt them to the different parts of the software project to be dealt with
- ◆ Acquire capacity of abstraction to apply one or several criteria of elements and levels of software quality
- ◆ Distinguish the cases of application of the standards and maturity levels in a real case simulated project



03

# Course Management

The teaching staff responsible for the development of all the contents of this program has been carefully selected by TECH for their extensive experience in leading numerous international IT projects. This not only provides a unique quality to the program, but also gives it a practical and theoretical approach that is essential for the computer scientist to graduate from this degree with the most sought-after knowledge in the market today.





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*Professionals who have already achieved success will be in charge of guiding you on this path, towards professionalization so that you can also achieve it"*

## 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

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- 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.

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*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





# 04

## Structure and Content

By incorporating the most avant-garde methodology based on Relearning, the student is guaranteed a progressive and natural teaching of the most important terms and concepts related to Software Quality.

The large amount of educational material available, including real examples provided by the teaching team, makes up a first-class academic program that is rigorous, exhaustive and adapted to the current IT reality.

```
20
21
22 // End Pawn overrides
23
24 /** Identifies if pawn
25 UPROPERTY(VisibleAnywhere
26 uint32 bIsDying:1;
27
28 /** replicating death
29 UFUNCTION()
30 void OnRep_Dying();
31
32 /** Returns True if th
```



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*The varied multimedia resources will make your study process more dynamic and agile, alleviating the teaching load of the entire syllabus"*

## Module 1. Software Quality TRL Development Levels

- 1.1. Elements that Influence Software Quality (I). Technical Debt
  - 1.1.1. Technical Debt. Causes and Consequences
  - 1.1.2. Software Quality General Principles
  - 1.1.3. Unprincipled and Principled Quality Software
    - 1.1.3.1. Consequences
    - 1.1.3.2. Necessity of Applying Quality Principles in Software
  - 1.1.4. Software Quality Typology
  - 1.1.5. Quality Software. Specific Features
- 1.2. Elements that Influence Software Quality (II). Associated Costs
  - 1.2.1. Software Quality Influencing Elements
  - 1.2.2. Software Quality Misconceptions
  - 1.2.3. Software Quality Associated Costs
- 1.3. Software Quality Models (I). Knowledge Management
  - 1.3.1. General Quality Models
    - 1.3.1.1. Total Quality Management
    - 1.3.1.2. European Business Excellence Model
    - 1.3.1.3. Six-Sigma Model
  - 1.3.2. Knowledge Management Models
    - 1.3.2.1. Dyba Model
    - 1.3.2.2. SEKSS Model
  - 1.3.3. Experience Factory and QIP Paradigm
  - 1.3.4. Quality in Use Models (25010)
- 1.4. Software Quality Models (III). Quality in Data, Processes and SEI Models
  - 1.4.1. Data Quality Data Model
  - 1.4.2. Software Process Modeling
  - 1.4.3. Software & Systems Process Engineering Metamodel Specification (SPEM)
  - 1.4.4. SEI Models
    - 1.4.4.1. CMMI
    - 1.4.4.2. SCAMPI
    - 1.4.4.3. IDEAL
- 1.5. ISO Software Quality Standards (I). Analysis of the Standards
  - 1.5.1. ISO 9000 Standards
    - 1.5.1.1. ISO 9000 Standards
    - 1.5.1.2. ISO Family of Quality Standards (9000)
  - 1.5.2. Other ISO Standards Related to Quality
  - 1.5.3. Quality Modeling Standards (ISO 2501)
  - 1.5.4. Quality Measurement Standards (ISO 2502n)
- 1.6. ISO Software Quality Standards (II). Requirements and Assessment
  - 1.6.1. Standards on Quality Requirements (2503n)
  - 1.6.2. Standards on Quality Assessment (2504n)
  - 1.6.3. ISO/IEC 24744: 2007
- 1.7. TRL Development Levels (I). Levels 1 to 4
  - 1.7.1. TRL Levels
  - 1.7.2. Level 1: Basic Principles
  - 1.7.3. Level 2: Concept and/or Application
  - 1.7.4. Level 3: Critical Analytical Function
  - 1.7.5. Level 4: Component Validation in Laboratory Environment 1.8





- 1.8. TRL Development Levels (II). Levels 5 to 9
  - 1.8.1. Level 5: Component Validation in Relevant Environment
  - 1.8.2. Level 6: System/Subsystem Model
  - 1.8.3. Level 7: Demonstration in Real Environment
  - 1.8.4. Level 8: Complete and Certified System
  - 1.8.5. Level 9: Success in Real Environment
- 1.9. TRL Development Levels. Uses
  - 1.9.1. Example of Company with Laboratory Environment
  - 1.9.2. Example of an R&D&I Company
  - 1.9.3. Example of an Industrial R&D&I Company
  - 1.9.4. Example of a Laboratory-Engineering Joint Venture Company
- 1.10. Software Quality Key Details
  - 1.10.1. Methodological Details
  - 1.10.2. Technical Details
  - 1.10.3. Software Project Management Details
    - 1.10.3.1. Quality of Computer Systems
    - 1.10.3.2. Software Product Quality
    - 1.10.3.3. Software Process Quality



*To be at the forefront is to be prepared and up to date with the real needs of the market. TECH provides you with the most specific education to achieve the best results"*

# 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.

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*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.*





### 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 student will learn to solve complex situations in real business environments through collaborative activities and real cases.*

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 Software Quality 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 Software Quality** 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 Software Quality**

Official N° of hours: **150 h**





future  
health confidence people  
education information tutors  
guarantee accreditation teaching  
institutions technology learning  
community commitment  
personalized service innovation  
knowledge present quality  
development language  
virtual classroom



## Postgraduate Certificate Software Quality

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# Postgraduate Certificate Software Quality