

# Postgraduate Certificate

## Software Project Development and Management





## Postgraduate Certificate Software Project Development and Management

- » Modality: online
- » Duration: 2 months
- » Certificate: TECH Technological University
- » Schedule: at your own pace
- » Exams: online

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

# Index

01

Introduction

---

*p. 4*

02

Objectives

---

*p. 8*

03

Course Management

---

*p. 12*

04

Structure and Content

---

*p. 18*

05

Methodology

---

*p. 26*

06

Certificate

---

*p. 26*

# 01

# Introduction

With this high-level program, you will specialize in the *Software* Project Development and Management, under the guidance of professional experts in the field. Throughout these months, students will learn the *Lean* development methodology to discriminate the activities that do not add value in the process, in order to obtain a higher quality *software*, among other issues of interest that will be addressed in this program



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*This Postgraduate Certificate is the best investment you can make when selecting a refresher program in the field of Software Project Development and Management. We offer you quality and free access to content"*

This comprehensive program in *Software Project Development and Management* will allow professionals in the IT industry to deepen their understanding and learn about the processes of management and monitoring of quality and secure software that meets the predefined requirements

Throughout these months of studying, the student will learn the basics of software engineering, as well as the set of rules or ethical principles and professional responsibility during and after development

With this program, the student will have access to the most advanced teaching resources and will have the opportunity to study a program that brings together the most in-depth knowledge in the field. A group of highly scientifically qualified professors with extensive international experience will provide students with the most complete and up-to-date information on the latest advances and techniques in *Software* and *Computer Systems Engineering*

The syllabus covers the main current topics in *Software* and *Computer Systems Engineering* in such a way that whoever masters them will be prepared to work in this field. Therefore, it is not just another diploma in your backpack, but a real learning tool to approach the topics of the specialty in a modern, objective way and with the ability to make a judgment based on today's most cutting-edge information

It should be noted that since this is a 100% online Postgraduate Certificate, the student is not conditioned by fixed schedules or the need to move to another physical location, but can access the contents at any time of the day, balancing their work or personal life with their academic life

This **Postgraduate Certificate in Software Project Development and Management** 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 Project Development and Management*
- ◆ 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
- ◆ Special emphasis on innovative methodologies in *Software Project Development and Management*
- ◆ Theoretical lessons, questions to the expert, debate forums on controversial topics, and individual reflection assignments
- ◆ Content that is accessible from any fixed or portable device with an Internet connection



*Learn to design, evaluate and manage engineering projects thanks to this high-quality program"*

“*Specialize in computer systems with the help of professionals with extensive experience in the sector*”

Its teaching staff includes professionals belonging to the field of *Software Project Development and Management* who contribute their work experience to this program, as well as renowned specialists from reference 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 learning 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 throughout the program. For this purpose, the professional will be assisted by an innovative interactive video system created by renowned and experienced *Software Project Development and Management*

*This program comes with the best educational material, providing you with a contextual approach that will facilitate your learning.*

*This 100% online Postgraduate Certificate will allow you to combine your studies with your professional work. You choose where and when to study.*



# 02 Objectives

The Postgraduate Certificate in *Software* Project Development and Management is oriented to facilitate the performance of the professionals so that they acquire knowledge of the main novelties in this field, which will allow them to practice their profession with the highest quality and professionalism





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*Our goal is for you to become the best professional in your sector and for this we have the best methodology and content"*



## General Objectives

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- ◆ Acquire new knowledge in *Software* and Computer Systems Engineering
- ◆ Acquire new skills in terms of new technologies and the latest software developments
- ◆ Process the data generated in *Software* and Computer Systems Engineering activities



*Join us and we will help you achieve professional excellence"*





## Specific Objectives

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- ◆ Know the basics of Software Engineering, as well as the set of rules or ethical principles and professional responsibility during and after development
- ◆ Understand the software development process, under the different programming models and the object-oriented programming paradigm
- ◆ Understand the different types of application modeling and design patterns in the Unified Modeling Language (UML)
- ◆ Acquire the knowledge required for the correct application of agile methodologies in software development such as Scrum, among others
- ◆ Know the Lean development methodology to identify the activities that do not add value to the process, in order to obtain a higher quality software
- ◆ Know the fundamental concepts of project management and the project management life cycle
- ◆ Understand the different stages of project management such as initiation, planning, stakeholder management and scoping
- ◆ Learn schedule development for time management, budget development and risk response
- ◆ Understand how quality management works in projects, including planning, assurance, control, statistical concepts and available tools
- ◆ Understand the functioning of the processes of procurement, execution, monitoring, control and closure of a project
- ◆ Acquire the essential knowledge related to the professional responsibility derived from project management

03

# Course Management

This academic program includes the most specialized teaching staff in the current educational market. They are specialists selected by TECH to develop the whole syllabus. In this way, starting from their own existence and the latest evidence, they have designed the most up-to-date content that provides a guarantee of quality in such a relevant subject.



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*TECH offers the most specialized teaching staff in the field of study. Enroll now and enjoy the quality you deserve”*

## International Guest Director

Darren Pulsipher is a highly experienced software architect, an innovator with an outstanding international track record in software and firmware development. In fact, he possesses highly developed communication, project management and business skills, which have enabled him to lead major global initiatives.

He has also held senior positions of great responsibility throughout his career, such as Chief Solution Architect for the Public Sector at Intel Corporation, where he has promoted modern business, processes and technologies for customers, partners and users in the public sector. In addition, he founded Yoly Inc. where he has also served as CEO, working to develop a social network aggregation and diagnostic tool based on Software as a Service (SaaS), using Big Data and Web 2.0 technologies.

Additionally, he has served in other companies, as Senior Director of Engineering, at Dell Technologies, where he led the Big Data in the Cloud Business Unit, leading teams in the United States and China for the management of large projects and the restructuring of business divisions for their successful integration. He has also worked as Chief Information Officer at XanGo, where he managed projects such as Help Desk support, production support and solution development.

Among the many specialties in which he is an expert, Edge to Cloud technology, cybersecurity, Generative Artificial Intelligence, software development, networking technology, cloud-native development and the container ecosystem stand out. Knowledge he has shared through the "Embracing Digital Transformation" podcast and weekly newsletter, which he produced and hosted, helping organizations successfully navigate digital transformation by leveraging people, processes and technology.



## Dr. Pulsipher, Darren

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- Chief Solution Architect for Public Sector at Intel, California, United States
- Presenter and Producer of "Embracing Digital Transformation", California
- Founder and CEO at Yoly Inc., Arkansas
- Senior Director of Engineering at Dell Technologies, Arkansas
- Chief Information Technology Officer, XanGo, Utah
- Senior Architect at Cadence Design Systems, California
- Senior Project Process Manager at Lucent Technologies, California
- Software Engineer at Cemax-Icon, California
- Software Engineer at ISG Technologies, Canada
- MBA in Technology Management from the University of Phoenix, Phoenix, California
- B.S. in Computer Science and Electrical Engineering from Brigham Young University



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

# 04

# Structure and Content

The structure of the contents has been designed by the best professionals in the sector, with extensive experience and recognized prestige in the profession, and aware of the benefits that the latest educational technology can bring to higher education







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*We have the most complete and up-to-date scientific program on the market. We strive for excellence and for you to achieve it too”*

## Module 1. Methodologies, Development and Quality in Software Engineering

- 1.1. Introduction to Software Engineering
  - 1.1.1. Introduction
  - 1.1.2. The Software Crisis
  - 1.1.3. Differences between Software Engineering and Computer Science
  - 1.1.4. Ethics and Professional Responsibility in Software Engineering
  - 1.1.5. Software Factories
- 1.2. The Software Development Process
  - 1.2.1. Definition
  - 1.2.2. Software Process Model
  - 1.2.3. The Unified Software Development Process
- 1.3. Object-Oriented Software Development
  - 1.3.1. Introduction
  - 1.3.2. Principles of Object Orientation
  - 1.3.3. Object Definition
  - 1.3.4. Class Definition
  - 1.3.5. Object-Oriented Analysis vs. Object-Oriented Design
- 1.4. Model-Based Software Development
  - 1.4.1. The Need to Model
  - 1.4.2. Software Systems Modeling
  - 1.4.3. Object Modeling
  - 1.4.4. UML
  - 1.4.5. CASE Tools
- 1.5. Application Modeling and Design Patterns with UML
  - 1.5.1. Advanced Requirements Modeling
  - 1.5.2. Advanced Static Modeling
  - 1.5.3. Advanced Dynamic Modeling
  - 1.5.4. Component Modeling
  - 1.5.5. Introduction to Design Patterns with UML
  - 1.5.6. Adapter
  - 1.5.7. Factory
  - 1.5.8. Singleton
  - 1.5.9. Strategy
  - 1.5.10. Composite
  - 1.5.11. Facade
  - 1.5.12. Observer
- 1.6. Model-Driven Engineering
  - 1.6.1. Introduction
  - 1.6.2. Metamodeling of Systems
  - 1.6.3. MDA
  - 1.6.4. DSL
  - 1.6.5. Model Refinements with OCL
  - 1.6.6. Model Transformations
- 1.7. Ontologies in Software Engineering
  - 1.7.1. Introduction
  - 1.7.2. Ontology Engineering
  - 1.7.3. Application of Ontologies in Software Engineering
- 1.8. Agile Methodologies for Software Development, Scrum
  - 1.8.1. What is Software Agility?
  - 1.8.2. The Agile Manifesto
  - 1.8.3. The Roadmap of an Agile Project
  - 1.8.4. The Product Owner
  - 1.8.5. User Stories
  - 1.8.6. Agile Planning and Estimating
  - 1.8.7. Measurements in Agile Development
  - 1.8.8. Introduction to Scrum
  - 1.8.9. The Roles
  - 1.8.10. The Product Backlog
  - 1.8.11. The Sprint
  - 1.8.12. Meetings
- 1.9. Lean Software Development Methodology
  - 1.9.1. Introduction
  - 1.9.2. Kanban
- 1.10. Quality and Software Process Improvement
  - 1.10.1. Introduction
  - 1.10.2. Software Measurement
  - 1.10.3. Software Testing
  - 1.10.4. Software Processes Quality Model: CMMI



## Module 2. Software Project Management

- 2.1. Fundamental Concepts of Project Management and the Project Management Lifecycle
  - 2.1.1. What is a Project?
  - 2.1.2. Common Methodology
  - 2.1.3. What is Project Management?
  - 2.1.4. What is a Project Plan?
  - 2.1.5. Benefits
  - 2.1.6. Project Life Cycle
  - 2.1.7. Process Groups or Project Management Life Cycle
  - 2.1.8. The Relationship between Process Groups and Knowledge Areas
  - 2.1.9. Relationships between Product and Project Life Cycle
- 2.2. Start-Up and Planning
  - 2.2.1. From the Idea to the Project
  - 2.2.2. Development of the Project Record
  - 2.2.3. Project Kick-Off Meeting
  - 2.2.4. Tasks, Knowledge and Skills in the Startup Process
  - 2.2.5. The Project Plan
  - 2.2.6. Development of the Basic Plan. Steps
  - 2.2.7. Tasks, Knowledge and Skills in the Planning Process
- 2.3. Stakeholders and Outreach Management
  - 2.3.1. Identify Stakeholders
  - 2.3.2. Develop Plan for Stakeholder Management
  - 2.3.3. Manage Stakeholder Engagement
  - 2.3.4. Control Stakeholder Engagement
  - 2.3.5. The Objective of the Project
  - 2.3.6. Scope Management and its Plan
  - 2.3.7. Gathering Requirements
  - 2.3.8. Define the Scope Statement
  - 2.3.9. Create the WBS
  - 2.3.10. Verify and Control the Scope

- 2.4. The Development of the Time-Schedule
  - 2.4.1. Time Management and its Plan
  - 2.4.2. Define Activities
  - 2.4.3. Establishment of the Sequence of Activities
  - 2.4.4. Estimated Resources for Activities
  - 2.4.5. Estimated Duration of Activities
  - 2.4.6. Development of the Time-Schedule and Calculation of the Critical Path
  - 2.4.7. Schedule Control
- 2.5. Budget Development and Risk Response
  - 2.5.1. Estimate Costs
  - 2.5.2. Develop Budget and S-Curve
  - 2.5.3. Cost Control and Earned Value Method
  - 2.5.4. Risk Concepts
  - 2.5.5. How to Perform a Risk Analysis
  - 2.5.6. The Development of the Response Plan
- 2.6. Quality Management
  - 2.6.1. Quality Planning
  - 2.6.2. Assuring Quality
  - 2.6.3. Quality Control
  - 2.6.4. Basic Statistical Concepts
  - 2.6.5. Quality Management Tools
- 2.7. Communication and Human Resources
  - 2.7.1. Planning Communications Management
  - 2.7.2. Communications Requirements Analysis
  - 2.7.3. Communication Technology
  - 2.7.4. Communication Models
  - 2.7.5. Communication Methods
  - 2.7.6. Communications Management Plan
  - 2.7.7. Manage Communications
  - 2.7.8. Management of Human Resources
  - 2.7.9. Main Stakeholders and their Roles in the Projects
  - 2.7.10. Types of Organization
  - 2.7.11. Project Organization
  - 2.7.12. The Work Equipment
- 2.8. Procurement
  - 2.8.1. The Procurement Process
  - 2.8.2. Planning
  - 2.8.3. Search for Suppliers and Request for Quotations
  - 2.8.4. Contract Allocation
  - 2.8.5. Contract Administration
  - 2.8.6. Contracts
  - 2.8.7. Types of Contracts
  - 2.8.8. Contract Negotiation
- 2.9. Execution, Monitoring and Control and Closure
  - 2.9.1. Process Groups
  - 2.9.2. Project Execution
  - 2.9.3. Project Monitoring and Control
  - 2.9.4. Project closure
- 2.10. Professional Responsibility
  - 2.10.1. Professional Responsibility
  - 2.10.2. Characteristics of Social and Professional Responsibility
  - 2.10.3. Project Leader Code of Ethics
  - 2.10.4. Liability vs. PMP®
  - 2.10.5. Examples of Liability
  - 2.10.6. Benefits of Professionalization



*A comprehensive and multidisciplinary educational program that will allow you to excel in your career, following the latest advances in the field of Software Project Development and Management"*



# 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.





*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 Project Development and Management 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 Project Development and Management** 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 Project Development and Management**  
Official N° of Hours: **300 h.**



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



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



**Postgraduate Certificate**  
Software Project  
Development and  
Management

- » Modality: online
- » Duration: 2 months
- » Certificate: TECH Technological University
- » Schedule: at your own pace
- » Exams: online

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