Internship Program
Advanced Software Engineering

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Advanced Software Engineering

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01
Introduction

Advanced Software Engineering is a fundamental pillar for success in the technology industry. In an environment characterized by the complexity of systems, companies are looking for robust solutions. In this sense, advanced techniques in this field enable organizations to develop applications that not only meet high quality standards, but also adapt to a constantly evolving technological environment. In this scenario, computer scientists need to have a solid understanding of the latest advances in Advanced Software Engineering. For this reason, TECH has created this university program, where students will join a well-versed team in this field to get up to date with the latest trends in this area.

Thanks to this Internship Program, you will handle the most advanced modeling techniques to represent the structure and behavior of systems"
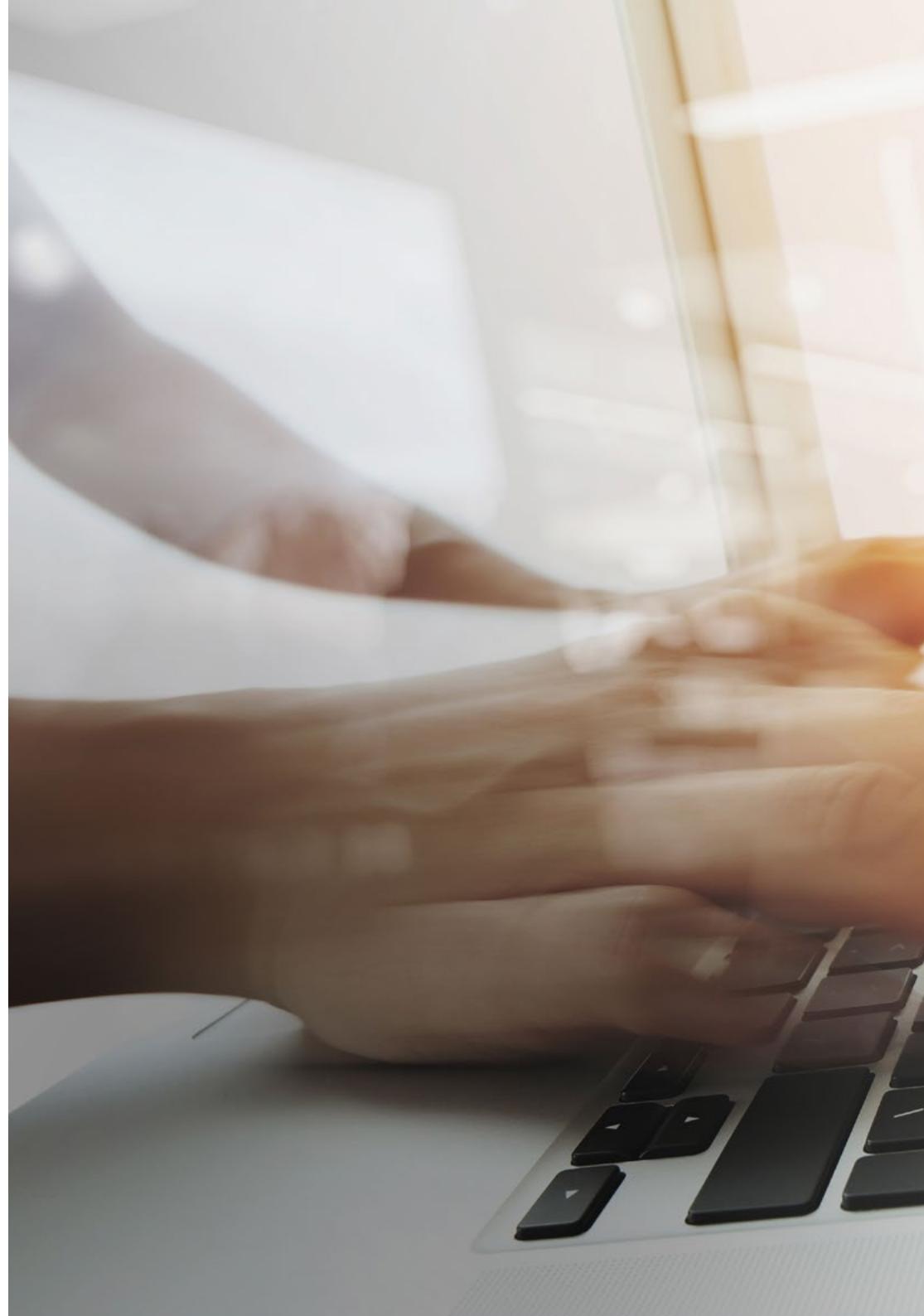
A recent report by the Organization for Economic Cooperation and Development shows that companies that implement advanced Software Engineering practices can improve their productivity by up to 30%. This underlines the importance of this discipline for technological innovation and business efficiency. Given this situation, it is essential that IT professionals incorporate into their daily practice the most cutting-edge techniques and methodologies to develop more efficient software systems.

In this context, TECH launches a revolutionary Internship Program in Advanced Software Engineering, which consists of a 120-hour on-site stay. Throughout 3 weeks, the graduates will be integrated into a work team made up of leading specialists in this field. Together with these professionals, the students will work actively on subjects such as data modeling, component design or system architecture, among others. In this way, the computer scientists will gain new skills to propel their professional careers to the top.

In addition, during their practical stay, students will have the support of an assistant tutor who will be in charge of guiding them and solving any doubts they may have. Thanks to this, graduates will enjoy a successful apprenticeship that will serve to expand their professional prospects. In this way, they will be highly prepared to make the leap to the most prestigious technological institutions and provide creative solutions.

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Why Study an Internship Program?

One of the main priorities of companies is to innovate and remain competitive in a global market. Therefore, institutions demand the incorporation of computer scientists highly specialized in Advanced Software Engineering, capable of developing new applications that help them to acquire competitive advantages. In order to take advantage of these opportunities, professionals need to stay at the forefront of the latest advances in the field. With this idea in mind, TECH has designed a unique and disruptive academic product in the current educational landscape, which will allow specialists to enter a real working environment where they can put into practice the latest procedures and techniques in Advanced Software Engineering.

You will join a prestigious institution to delve into the latest trends in Advanced Software Engineering"

1. Updating from the latest technology available

New technologies have had a significant impact on the field of Advanced Software Engineering, improving efficiency, quality and the ability to innovate in software development. One example of this is automated testing, which allows experts to detect and correct errors quickly. In order to bring these tools closer to the specialists, TECH presents this Internship Program for students to enter a cutting-edge work environment, where they will have access to the latest technology in the field

2. Gaining in-depth knowledge from the experience of top specialists

During their practical stay, students will be supported by a team of highly specialized professionals in Advanced Software Engineering.
These experts will help the students to make the most of their stay at the institution, while at the same time transmitting the latest advances in this field. In the same vein, a specifically appointed tutor will guide students during this Internship Program and provide them with personalized advice to ensure learning success.

3. Entering first-class professional environments

TECH's main objective is to provide top-quality programs, which is why it rigorously chooses the companies where its students will carry out this Internship Program.
In this way, computer scientists will have access to renowned institutions to work professionally. There they will have at their disposal the necessary technological tools to carry out their work and will enjoy state-of-the-art environments.

4. Putting the acquired knowledge into daily practice from the very first moment

TECH designs its university programs based on requirements of of the current labor market. For this reason, it offers a 100% practical learning model so that alumni can apply their theoretical knowledge in real, practical situations. In this way, students develop technical skills that are essential for the IT profession. In addition, active practice promotes creativity and innovation by providing students with the freedom to explore different approaches to work in a controlled environment.

5. Expanding the boundaries of knowledge

TECH has made an effort so that this Internship Program can be carried out in a variety of international reference institutions. In this way, computer scientists will be able to expand their frontiers and get up to date in Advanced Software Engineering with the best professionals in this sector. Graduates will thus acquire skills that will enable them to excel in a field that is in high demand by companies.

*You will have full practical immersion at the center of your choice"*

03
Objectives

Through this pathway, IT professionals will have a thorough knowledge of advanced software development methodologies and techniques. In this sense, graduates will be able to use state-of-the-art tools and frameworks for the development, testing and maintenance of applications. In addition, students will implement both security controls and privacy policies in order to ensure data integrity.

General Objectives

- Specialize scientifically and technologically, as well as prepare for the professional practice of Software Engineering, all with a transversal and versatile academic experience adapted to new technologies and innovations in this field

- Obtain wide knowledge in the field of software engineering, but also in the field of computation and computer structure, including the mathematical, statistical and physical basis essential in engineering
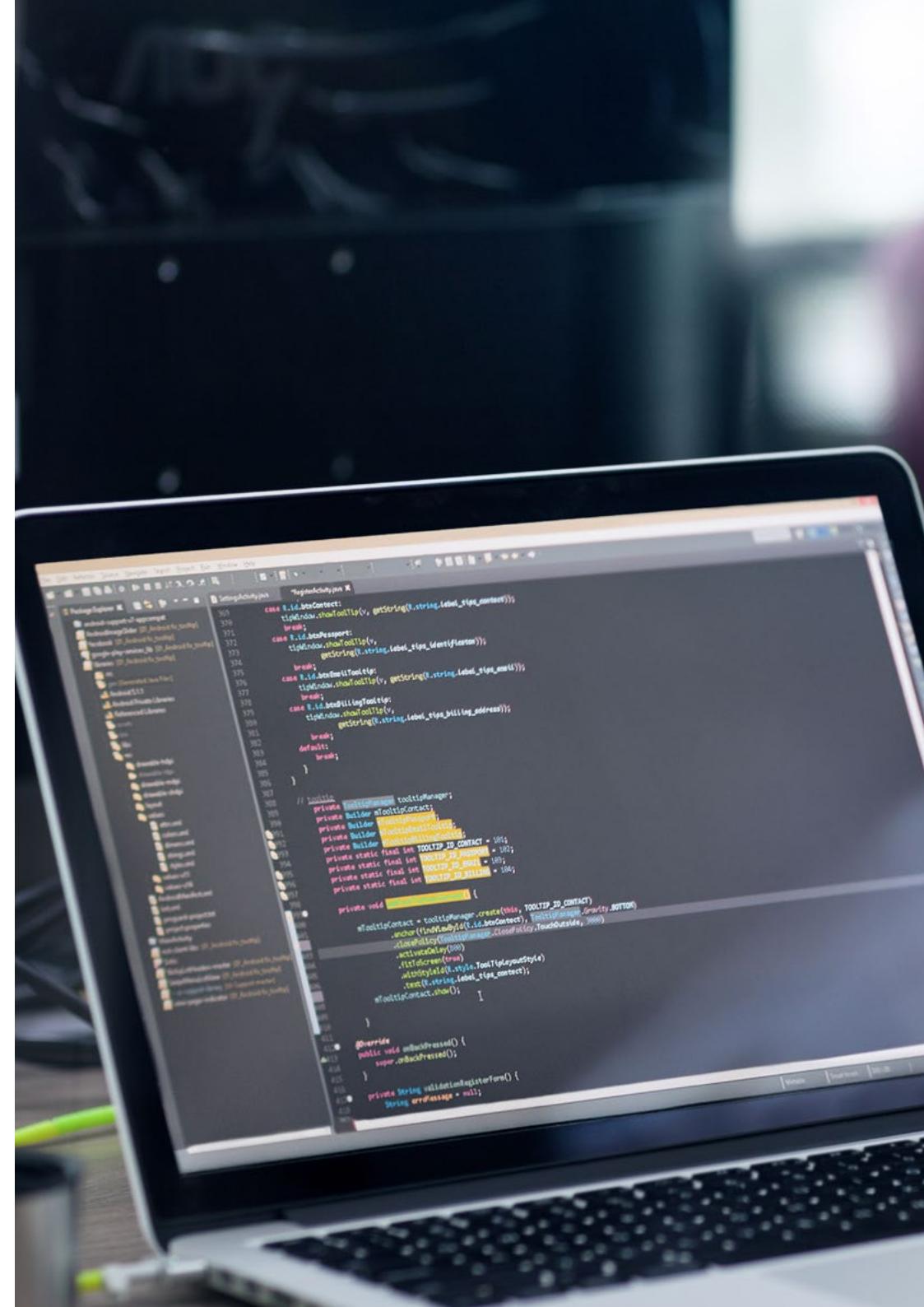
Specific Objectives

- Lay the foundations of software engineering and modeling, learning the main processes and concepts

- Understand the software process and the different models for its development including agile technologies

- Know the main standards related to software quality and project management

- Know in depth the different agile methodologies used in software engineering

- Learn to develop using scrum, extreme programming and reuse-based software development techniques

- Understand the concepts and processes of software design, learning also about architecture design and design at component level and based on patterns

- Introduce the DevOps concept and its main practices

- Learn how to test software, with methodologies such as Test-Driven Development, Acceptance Test-Driven Development, Behavior-Driven Development, BDD and Cucumber

- Understand the different patterns of system architectures and software design, as well as the architecture of cloud applications

- Understand requirements engineering, their development, elaboration, negotiation and validation

- Learn the modeling of requirements and the different elements such as scenarios, information, analysis classes, flow, behavior and patterns

- Delve into the improvement of the software development process and software quality using ISO/IEC standards

- Understand and apply prototyping as an essential part of the development process
- Delve into software testing strategies and techniques, software quality factors and different metrics used
- Acquire the essential knowledge of IT security management systems
- Learn the basics of Business Intelligence, its strategies and implementation, as well as the present and future of BI
- Learn about the concept of framework, as well as to the main types such as those for graphical user interface design, web application development and object persistence management in databases
- Learn how the Information Technology Infrastructure Library (ITIL) works, strategies, service design, transitions and operations
- 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 various techniques of system protection and secure code development
- Know the essential components of botnets and spam, as well as malware and malicious code
- Lay the foundations for forensic analysis in the world of software and computer audits

- Obtain a global perspective on security, cryptography and classical cryptanalysis

- Understand the fundamentals of symmetric cryptography and asymmetric cryptography, as well as their main algorithms

- 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

- 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

04
Educational Plan

The Internship Program of this program in Advanced Software Engineering consists of a practical stay in a prestigious entity lasting 3 weeks, from Monday to Friday, with 8 consecutive hours of practical training with an assistant specialist. During this course, computer scientists will develop advanced skills that will enable them to significantly optimize their practice.

In this completely practical training proposal, the activities are aimed at developing and perfecting the necessary skills for the provision of Advanced Software Engineering services, and are oriented to the specific training for the exercise of the activity.

In this completely practical training proposal, the activities are aimed at developing and perfecting the necessary skills for the provision of Advanced Software Engineering services, and are oriented to the specific training for the exercise of the activity. In this way, graduates will acquire all the knowledge they need to experience a significant leap in quality in their careers.

The practical education will be carried out with the active participation of the student performing the activities and procedures of each area of competence (learning to learn and learning to do), with the accompaniment and guidance of teachers and other training partners that facilitate teamwork and multidisciplinary integration as transversal competencies for the praxis of Computer Science (learning to be and learning to relate).
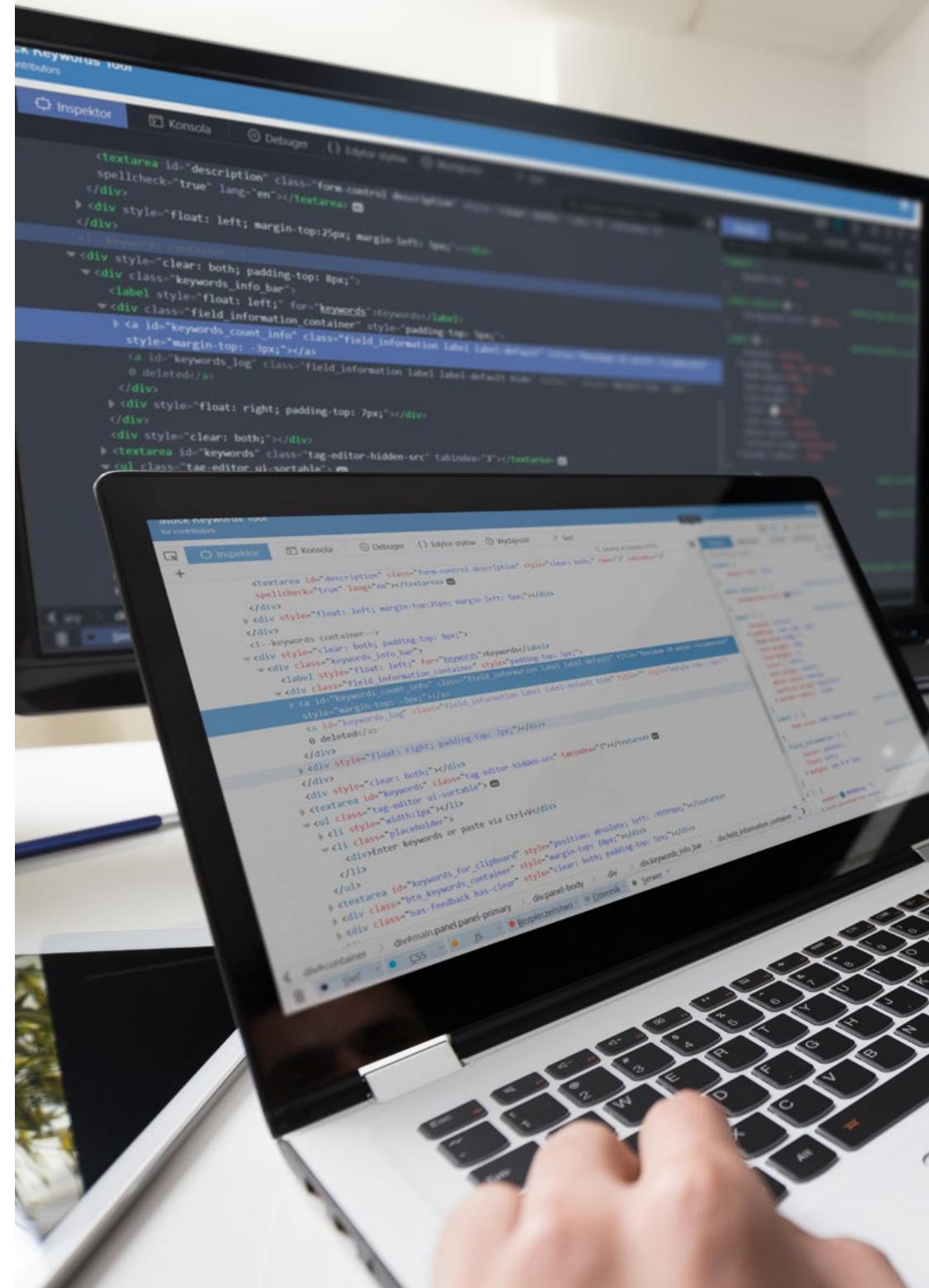
The procedures described below will be the basis of the practical part of the program, and their implementation will be subject to the center's own availability and workload, the proposed activities being the following:

Module	Practical Activity
Advanced Software Development	Design software architectures that are scalable, robust, and easy to maintain
	Use modeling techniques such as Unified Modeling Language to represent both system structure and behavior prior to implementation
	Write efficient and clean code in a variety of programming languages
	Use agile methodologies to plan, execute and track software projects
Requirement Management	Analyze the user's environment and study the application domain to identify problems that the software must solve
	Use modeling techniques (such as UML diagrams or use cases and scenarios) to represent requirements in a structured way
	Draft requirements specification documents with stakeholders to ensure that the captured requirements are correct
	Develop prototypes and simulations of the system in order to validate requirements with users
Requirement Management	Establish quality standards for information systems maintenance, based on frameworks
	Conduct functional, performance, security and usability testing
	Identify and assess risks associated with information systems
	Implement continuous integration and deployment pipelines to ensure that new versions of software are developed, tested and deployed efficiently
Connecting Systems	Delve into systems to identify potential integration challenges and plan for effective solutions
	Create data models that define how data will be structured and handled between integrated systems
	Design the integration architecture, selecting the most appropriate patterns and methods (e.g., service-based integration, messaging, APIs)
	Configure interfaces to enable communication and data transfer between the integrated systems

05
Where Can I Do the Internship Program?

In its priority to offer high quality programs, TECH broadens the academic horizons of students so that this Internship Program can be carried out in various prestigious international entities. In this way, graduates have the opportunity to grow professionally alongside the best specialists in the field of Advanced Software Engineering.

You will carry out your practical stay in a reference institution in Advanced Software Engineering"
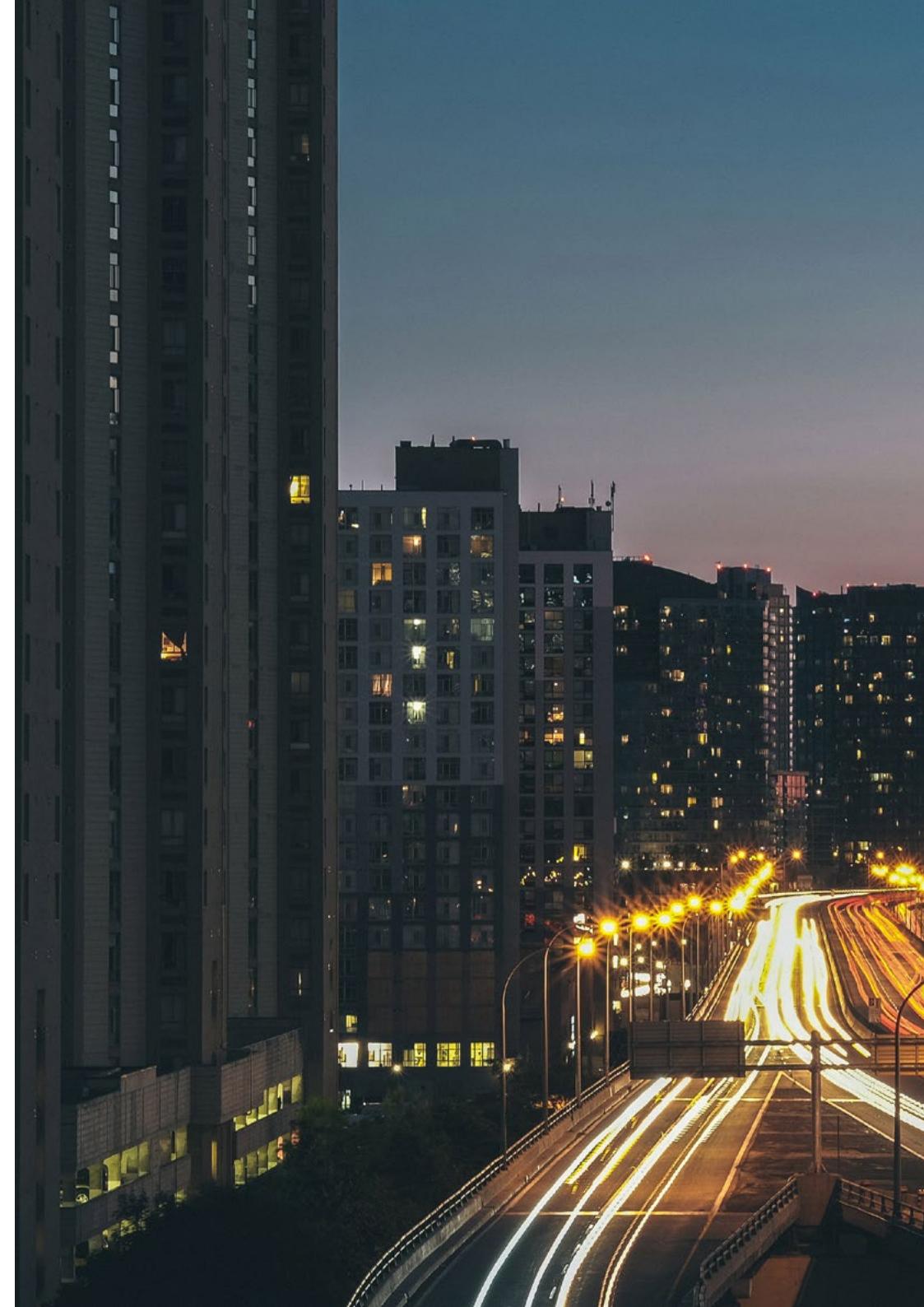
tech

The student will be able to do this program at the following centers:

Computer Science

Captia Ingeniería

Country
Spain

City
Madrid

Address: Av. de las Nieves, 37, Bloque A Planta 1
Oficina E, 28935, Móstoles, Madrid

IT company dedicated to providing advanced technological
solutions to industries.

Related internship programs:
- Visual Analytics and Big Data
- Software Development

General Conditions

Civil Liability Insurance

This institution's main concern is to guarantee the safety of the students and other collaborating agents involved in the internship process at the company. Among the measures dedicated to achieve this is the response to any incident that may occur during the entire teaching-learning process.

To this end, this entity commits to purchasing a civil liability insurance policy to cover any eventuality that may arise during the course of the internship at the center.

This liability policy for interns will have broad coverage and will be taken out prior to the start of the practical training period. That way professionals will not have to worry in case of having to face an unexpected situation and will be covered until the end of the internship program at the center.

General Conditions of the Internship Program

The general terms and conditions of the internship agreement for the program are as follows:

1. TUTOR: During the Internship Program, students will be assigned with two tutors who will accompany them throughout the process, answering any doubts and questions that may arise. On the one hand, there will be a professional tutor belonging to the internship center who will have the purpose of guiding and supporting the student at all times. On the other hand, they will also be assigned with an academic tutor, whose mission will be to coordinate and help the students during the whole process, solving doubts and facilitating everything they may need. In this way, the student will be accompanied and will be able to discuss any doubts that may arise, both clinical and academic.

2. DURATION: The internship program will have a duration of three continuous weeks, in 8-hour days, 5 days a week. The days of attendance and the schedule will be the responsibility of the center and the professional will be informed well in advance so that they can make the appropriate arrangements.

3. ABSENCE: If the students does not show up on the start date of the Internship Program, they will lose the right to it, without the possibility of reimbursement or change of dates. Absence for more than two days from the internship, without justification or a medical reason, will result in the professional's withdrawal from the internship, therefore, automatic termination of the internship. Any problems that may arise during the course of the internship must be urgently reported to the academic tutor.

4. CERTIFICATION: Professionals who pass the Internship Program will receive a certificate accrediting their stay at the center.

5. EMPLOYMENT RELATIONSHIP: The Internship Program shall not constitute an employment relationship of any kind.

6. PRIOR EDUCATION: Some centers may require a certificate of prior education for the Internship Program. In these cases, it will be necessary to submit it to the TECH internship department so that the assignment of the chosen center can be confirmed.

7. DOES NOT INCLUDE: The Internship Program will not include any element not described in the present conditions. Therefore, it does not include accommodation, transportation to the city where the internship takes place, visas or any other items not listed.

However, students may consult with their academic tutor for any questions or recommendations in this regard. The academic tutor will provide the student with all the necessary information to facilitate the procedures in any case.

07
Certificate

This **Internship Program in Advanced Software Engineering** contains the most complete and up-to-date program on the professional and educational field.

After the student has passed the assessments, they will receive their corresponding **Internship Program** diploma issued by **TECH Technological University** via tracked delivery*.

In addition to the diploma, students will be able to obtain an academic transcript, as well as a certificate outlining the contents of the program. In order to do so, students should contact their academic advisor, who will provide them with all the necessary information.

Title: **Internship Program in Advanced Software Engineering**

Duration: **3 weeks**

Attendance: **Monday to Friday, 8-hour consecutive shifts**

tech technological university

Awards the following

DIPLOMA
to

Mr./Ms. _____, with identification number _____.
For having successfully passed and accredited the following program

INTERNSHIP PROGRAM
in

Advanced Software Engineering

This is a qualification awarded by this University, with a duration of 120 hours, with a start date of dd/mm/yyyy and an end date of dd/mm/yyyy.

TECH is a Private Institution of Higher Education recognized by the Ministry of Public Education as of June 28, 2018.

June 17, 2020

Tere Guevara Navarro
Dean

Unique TECH Code: AFWORD23S   techtitute.com/certificates

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