Skills and professional opportunities

Degree in Software Engineering

Skills

Basic skills

- That students have demonstrated possession and understanding of knowledge in an area of study that is based on general secondary education, and is usually found at a level that, although supported by advanced textbooks, also includes some aspects that They involve knowledge from the cutting edge of their field of study.

- That students know how to apply their knowledge to their work or vocation in a professional manner and possess the skills that are usually demonstrated through the elaboration and defense of arguments and the resolution of problems within their area of study.

- That students have the ability to gather and interpret relevant data (normally within their area of study) to make judgments that include reflection on relevant issues of a social, scientific or ethical nature.

- That students can transmit information, ideas, problems and solutions to both a specialized and non-specialized audience.

- That students have developed those learning skills necessary to undertake further studies with a high degree of autonomy.Que los estudiantes puedan transmitir información, ideas, problemas y soluciones a un público tanto especializado como no especializado.

General skills

- Ability to understand, plan and solve problems through the development of computer solutions.

- Development of IT solutions that respect the environment, social duties and natural resources, in addition to complying with legislation and ethics.

- Knowledge of the scientific foundations applicable to solving computer problems.

- Ability to simplify and optimize computer systems based on the understanding of their complexity

- Management of human and technological resources for the correct execution of IT projects

- Develop collaborative projects demonstrating the ability to work as a team, versatility, flexibility, creativity and respect for the work of colleagues.

- Knowledge of the creative foundations of idea generation in software development projects.

- Know the employability resources and the legal framework in the field of the profession.

- Ability to learn, modify and produce new computer technologies.

- Use of creative techniques to carry out computer projects.

- Ability to search, analyze and manage information to be able to extract knowledge from it.

- Ability to participate in decision-making, related to the development of a digital project, based on the analysis of its context and in accordance with its target audience and the established business model.

- Development of the critical spirit in social and communication areas to be able to function in the society of the

- knowledge and information.

- Knowledge of the needs of industries and economies at a global level as well as globalization, its consequences and its applications to digital businesses.

Transversal skills

- Knowledge of the definition, scope and implementation of the fundamentals of technological development project management methodologies.
- Knowledge of the main agents in the sector and the complete life cycle of a digital content development and marketing project.
- Ability to update the knowledge acquired in the management of digital tools and technologies based on the current state of the sector and the technologies used.
- Development of the skills necessary for digital entrepreneurship.

Specific skills

- Knowledge of the structure of computers, the concepts of coding, manipulation, information processing and use of low-level languages.

- Knowledge of relational algebra and performing queries in procedural languages for the design of standardized database schemas based on entity-relationship models.

- Ability to design and implement web applications on both client and server sides with standard scalable technologies.

- Knowledge of the use of asynchronous communication mechanisms between client-server and packaging of these web applications for mobile platforms for the development of dynamic web applications.

- Knowledge of the main types of data structures and use of libraries and algorithmic techniques associated with these structures along with the orders of complexity that characterize these techniques.

- Knowledge of the different paradigms behind programming languages.

- Knowledge of control structures, variables, programming syntax and management of memory use effectively in the development of a computer application.

- Ability to manage a code version manager and generate application documentation automatically.

- Knowledge of the architecture of Operating Systems as well as the different mechanisms for process management, communication and synchronization.

- Ability to manage a server or a small computer network and to automate those tasks.

- Knowledge of the fundamentals of computer networks, the different topologies and their communication protocols.

- Knowledge of communication technologies between computers as well as the ability to configure a TCP/IP network and basic services

- Knowledge of fault tolerance, adaptability, load balancing and system predictivity for developing distributed applications.

- Knowledge of how operating systems work: memory, input-output resources, files and their security mechanisms.

- Knowledge of the parallelization characteristics of graphics cards and high-performance architectures for application development.

- Ability to design the architecture of an object-oriented computer application using the most appropriate design patterns and integrating them into the complete architecture.

- Ability to conceive, design through graphic languages and implement a computer application using different development methodologies, from the

conception of the product to its final development through the definition of its phases and iterations.

- Ability to test the operation and functionality of a computer application, developing test plans and using design and programming techniques aimed at testing.

- Ability to evaluate the quality of a computer application by applying software quality measurement metrics, procedures and standards.

- Knowledge of the techniques and implications of maintaining computer applications, including those that use reverse engineering principles to understand and modify software whose structure is unknown.

- Knowledge of the principles of artificial intelligence and use of deterministic search algorithms and state machines.

- Ability to solve mathematical problems that arise in computer engineering based on the knowledge acquired about linear algebra, differential and integral calculus and statistics.

- Knowledge of the fundamentals of visual language, visual creation techniques and the tools associated with them.

- Knowledge of the fundamentals on which human-machine interaction is based and the role that this interaction plays in the development of digital projects.

- Knowledge of methods and techniques related to the conceptualization, design, analysis and evaluation of usable and accessible interactive products.

- Knowledge of the basic concepts of discrete mathematics, logic, algorithms and computational complexity and their application in solving computer engineering problems..

- Ability to handle complex situations in the field of developing complete software projects.

- Ability to synthesize a software project by putting ideas into writing in a structured, orderly and understandable way, as well as presenting and defending it publicly.

Professional outings

Graduate students in Software Engineering have versatile profiles and the ability to work on transdisciplinary projects, with solid technical and technological training, so that they can participate in projects that involve the use of technologies for the creation of software of all kinds. They have great ability to work in teams of all types and thus promote the development of companies, projects and tasks in the field of new digital technologies. Within this, some notable professions are::

- Technology Director

- Engineering Project Manager

- Software Architect

- Application developer

- Data Scientist

- Artificial Intelligence Developer