Degree in Digital and Computing Interaction Techniques

Competences	1st course										2nd course										3r course

Competency–subject matrix for the **Degree in Digital and Computing Interaction Techniques**.

Columns – 1st course: Algorithms and Programming · Computer Organization · Computational Logic · Design and Creativity in Interactive Environments · Mathematics for Computing · Object Oriented Programming · Computer Architecture · Application Development Platforms/Applications · Interaction and Usability · Business Management

Columns – 2nd course: Discrete Mathematics · Data Structures · Computer Techniques · Operating Systems · Databases · Specification and Analysis of Interactive Systems · User Experience · Communication Networks · Innovation in ICT · Applications for Mobile Devices

Columns – 3r course: Systems Administration and Virtualization · Applications and Communications Security · Interactive Applications Design · Web Project · Bachelor Thesis · *Specialization module in Project in Company (Dual Formation):* Project in Company 1 · Project in Company 2 · Project in Company 3 · Project in Company 4 · *Specialization module in Systems of Business Information:* Internship · Direction, Organisation and leadership of Technological Projects · Architecture of the Systems of Information · Analysis, Modeling and Design of Information Systems · *Optional Subjects:* Mobility · Cross-curricular Subject

Competence rows: B01, B02, B03, B04, B05, CT1, CT2, CT3, CT4, CT5, CG1, CG2, CG3, CG4, CG5, CG6, CG7, CG8, CG9, CG10

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CE23
CE24
CE25
CE26

Basic Competences

CB01 That students have demonstrated to possess and understand knowledge in an area of study that starts from the base of general secondary education, and is usually found at a level that, although supported by advanced textbooks, also includes some aspects that imply knowledge coming from the vanguard of his/her field of study.

CB02 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.

CB03 That students have the ability to gather and interpret relevant data (usually within their area of study) to make judgments that include a reflection on relevant social, scientific or ethical issues.

CB04 That students can transmit information, ideas, problems and solutions to a specialized and non-specialized public.

CB05 That students have developed those learning skills necessary to undertake further studies with a high degree of autonomy

Transversal Competences

CT1 Acquire adequate comprehension and oral and written expression of Catalan and Spanish.

CT2 Acquire a significant command of a foreign language, especially English.

CT3 Acquire training in the use of new technologies and information and communication technologies.

CT4 Acquire basic knowledge of entrepreneurs and professional environments.

CT5 Acquire essential notions of scientific thought.

General Competences

CG1. Conceive, plan and developed projects in the field of ICT

CG2. Design, develop, evaluate and guarantee the accessibility, ergonomics, usability and security of computer systems.

CG3. Use adequate hardware and software platforms to develop and execute interactive digital applications.

CG4. Use software engineering methods to develop interactive ICT applications.

CG5. Know the basic subject areas and technologies needed to learn and develop new methods and technologies, and those that help to adapt to new situations.

CG6. Know and apply basic economical and human resources concepts, and organization and planning of informatics projects.

CG7. Solve problems through initiative, determination, independence and creativity.

CG8. Capacity for abstraction and critical, logical and mathematical reasoning.

CG9. Capacity for being analytic and synthetic.

CG10. Capacity to apply proper algorithmic techniques to solve computational problems.

Specific Competences

CE1. Capacity to formalize and solve computational problems, using mathematical language related to algebra and set theory.

CE2. Capacity to understand and master the basic concepts of discrete mathematics, logics, algorithmic and computational complexity, and its application to solve computational problems

CE3. Basic knowledge of the use and programming of computers, operating systems and databases, and their use in the development of interactive applications.

CE4. Capacity to know, understand and evaluate the structure and architecture of computers, as well as the basic components that conform them.

CE5. Suitable knowledge of the concept and typologies of companies, and its institutional and legal framework, identifying essential aspects for business organisation and management.

CE6. Capacity to design, develop, select and evaluate applications and computer systems, ensuring its reliability, security and quality.

CE7. Know, manage and maintain systems, services and interactive applications.

CE8. Knowledge and application of the basic algorithmic procedures of the computer technologies to design problem solving, analysing the suitability and complexity of the algorithms proposed.

CE9. Knowledge, design and efficient use of the types and data structure more suitable for solving a problem

CE10. Capacity to analyse, design, build and maintain safe and efficient applications, choosing the most suitable paradigm and programming languages.

CE11. Knowledge of the characteristics, functionalities and structures of the operating systems and design and implement applications based in their services.

CE12. Knowledge and ability to apply the characteristics, functionalities and structure of computer networks and internet, and design and implement interactive applications based on them.

CE13. Knowledge and application of the characteristics, functionalities and structure of the databases, that allow their suitable use, and the design and the analysis and implementation of interactive applications based on them.

CE14. Knowledge and application of the necessary tools for the storage, processing and access to information systems, including those based on web.

CE15. Knowledge and application of the principles, methodologies and life cycle in software engineering.

CE16. Capacity to design and evaluate person-computer interfaces that guarantee the usability of systems, services and computer applications.

CE17. Capacity to apply knowledge on design to propose and defend a design concept for an interactive system and use proper creative technologies to develop each project.

CE18. Capacity to integrate ICT solutions and business to satisfy the needs of information of the organizations, allowing them to reach their aims effective and efficiently, giving them a competitive advantage.

CE19. Capacity to determine the requirements of the information and communication systems of an organisation taking into account security issues and fulfilment of the rules and regulations.

CE20. Capacity to actively participate in the specification, design, implementation and maintenance of enterprise information and communication systems.

CE21. Capacity to understand and apply the principles and techniques of quality management and of technological innovation in organisations.

CE22. Capacity to apply the acquired knowledge to propose innovative technological solutions in the area of digital interactive applications.

CE23. Capacity to individually develop, present and defend in front of a committee an original project in the field of the digital interactive applications and computation, which synthetizes and integrates the competences acquired in the bachelor degree.

CE24- Capacity to understand the human factors involved in any interactive process between humans and technology, as well as being able to adequately apply them in the design of interactive products and services, and their interfaces.

CE25- Capacity to analyse, organize, label and visualize the structure that defines the interaction with digital contents, by applying information architecture methods, techniques and tools that facilitate accessibility.

CE26- Capacity to apply universal design and accessibility principles and standards to design experiences that guarantee equal opportunity for users.