هيئة اعتمـاد مؤسسات التعليم العالي

Higher Education Accreditation Commission

كفــايـــــات تكنولوجيا المعلومات

المـركـز الوطني للاختبـارات

National Testing Center

تشرين الأول 2013

CIT1 To demonstrate knowledge and comprehension of essential facts, concepts, principles and theories related to informatics and their disciplines of reference.

CIT1.1.A To demonstrate knowledge and comprehension about the fundamentals of computer usage and programming, about operating systems, databases and, in

general, about computer programs applicable to the engineering.

CIT1.1.B   To demonstrate knowledge and comprehension about the fundamentals of computer usage and programming. Knowledge about the structure, operation and interconnection of computer systems, and about the fundamentals of its programming.

CIT1.2.A   To interpret, select and value concepts, theories, uses and technological developments related to computer science and its application derived from the needed fundamentals of mathematics, statistics and physics. Capacity to solve the mathematical problems presented in engineering. Talent to apply the knowledge about: algebra, differential and integral calculus and numeric methods; statistics and optimization.

CIT1.2.B   To interpret, select and value concepts, theories, uses and technological developments related to computer science and its application derived from the needed fundamentals of mathematics, statistics and physics. Capacity to understand and dominate the physical and technological fundamentals of computer science: electromagnetism, waves, circuit theory, electronics and photonics and its application to solve engineering problems.

CIT1.2.C   To use properly theories, procedures and tools in the professional development of the informatics engineering in all its fields (specification, design, implementation, deployment and products evaluation) demonstrating the comprehension of the adopted compromises in the design decisions.

CIT2   To use properly theories, procedures and tools in the professional development of the informatics engineering in all its fields (specification, design, implementation, deployment and products evaluation) demonstrating the comprehension of the adopted compromises in the design decisions.

CIT2.1   To demonstrate knowledge and capacity to apply the principles, methodologies and life cycles of software engineering.

CIT2.2   To demonstrate knowledge and capacity to apply the characteristics, functionalities and structure of databases, allowing an adequate use, design, analysis and implementation of applications based on them.

CIT2.3   To design, develop, select and evaluate computer applications, systems and services and, at the same time, ensure its reliability, security and quality in function of ethical principles and the current legislation and normative.

CIT2.4   To demonstrate knowledge and capacity to apply the needed tools for storage, processing and access to the information system, even if they are web-based systems.

CIT2.5   To design and evaluate person-computer interfaces which guarantee the accessibility and usability of computer systems, services and applications.

CIT3 **To demonstrate knowledge and comprehension of the organizational, economic and legal context where her work is developed (proper knowledge about the company concept, the institutional and legal framework of the company and its organization and management)**

CIT3.1 To understand and explain reasonably the basic economical concepts, the objectives and the instruments of economical politics and their influence in the economical activity.

CIT3.2 To know and describe the main processes of the functional areas of a company and the existent links between them, which make possible the coordination and integration in a group.

CIT3.3 To be able to find and interpret basic information for evaluating the economic environment of the organization.

CIT3.4 To know the basic financial concepts which allow valuing the costs and benefits of a project or different alternatives, monitor a budget, control the cost, etc.

CIT3.5 To identify the use possibilities and benefits which can be derived from an application in the different business software typologies and existent ICT services.

CIT3.6 To demonstrate knowledge about the ethical dimension of the company: in general, the social and corporative responsibility and, concretely, the civil and professional responsibilities of the informatics engineer.

CIT4 **To demonstrate knowledge and capacity to apply the basic algorithmic procedures of the computer science technologies to design solutions for problems, analyzing the suitability and complexity of the algorithms.**

CIT4.1 To identify the most adequate algorithmic solutions to solve medium difficulty problems.

CIT4.2 To reason about the correction and efficiency of an algorithmic solution.

CIT4.3 To demonstrate knowledge and capacity to apply the fundamental principles and the basic techniques of the intelligent systems and its practical application.

CIT5 **To analyze, design, build and maintain applications in a robust, secure and efficient way, choosing the most adequate paradigm and programming languages.**

CIT5.1 To choose, combine and exploit different programming paradigms, at the moment of

building software, taking into account criteria like ease of development, efficiency, portability and maintainability.

CIT5.2   To know, design and use efficiently the most adequate data types and data structures to solve a problem

CIT5.3   To design, write, test, refine, document and maintain code in an high level programming language to solve programming problems applying algorithmic schemas and using data structures.

CIT5.4   To design the programs architecture using techniques of object orientation, modularization and specification and implementation of abstract data types.

CIT5.5   To use the tools of a software development environment to create and develop applications.

CIT6	To demonstrate knowledge and comprehension about the internal operation of a computer and about the operation of communications between computers.

CIT6.1   To demonstrate knowledge and capacity to manage and maintain computer systems, services and applications.

CIT6.2   To demonstrate knowledge, comprehension and capacity to evaluate the structure and architecture of computers, and the basic components that compound them

CIT6.3   To demonstrate knowledge about the characteristics, functionalities and structure of the Operating Systems allowing an adequate use, management and design, as well as the implementation of applications based on its services.

CIT6.4   To demonstrate knowledge and capacity to apply the characteristics, functionalities and structure of the Distributed Systems and Computer and Internet Networks guaranteeing its use and management, as well as the design and implementation of application based on them.

CIT7	To evaluate and select hardware and software production platforms for executing applications and computer services.

CIT7.1   To demonstrate knowledge about metrics of quality and be able to use them.

CIT7.2   To evaluate hardware/software systems in function of a determined criteria of quality.

CIT7.3   To determine the factors that affect negatively the security and reliability of a hardware/software system, and minimize its effects.

CIT8	To plan, conceive, deploy and manage computer projects, services and systems in every field, to lead the start-up, the continuous improvement and to value the economic and social impact.

CIT8.1   To identify current and emerging technologies and evaluate if they are applicable, to

satisfy the users needs.

CIT8.2 To assume the roles and functions of the project manager and apply, in the organizations field, the techniques for managing the timing, cost, financial aspects, human resources and risk.

CIT8.3 To demonstrate knowledge and be able to apply appropriate techniques for modelling and analyzing different kinds of decisions.

CIT8.4 To elaborate the list of technical conditions for a computers installation fulfilling all the current standards and normative.

CIT8.5 To manage and solve problems and conflicts using the capacity to generate alternatives or future scenarios analyzed properly, integrating the uncertainty aspects and the multiple objectives to consider.

CIT8.6 To demonstrate the comprehension of the importance of the negotiation, effective working habits, leadership and communication skills in all the software development environments.

CIT8.7 To control project versions and configurations.