

<b>General Information</b>	
Academic subject	Informatics
Degree course	Economics and Business Administration
Curriculum	
ECTS credits	7
Compulsory attendance	No
Language	Italian

<b>Subject teacher</b>	Name Surname	Mail address	SSD
	Michele Scalera	michele.scalera@uniba.it	ING-INF/05

<b>ECTS credits details</b>			
Basic teaching activities			

<b>Class schedule</b>	
Period	I semester
Year	II
Type of class	Lecture - Workshops

<b>Time management</b>	
Hours	175
In-class study hours	56
Out-of-class study hours	119

<b>Academic calendar</b>	
Class begins	21/09/2021
Class ends	23/12/2021

<b>Syllabus</b>	
Prerequisites/requirements	
Expected learning outcomes (according to Dublin Descriptors) (it is recommended that they are congruent with the learning outcomes contained in A4a, A4b, A4c tables of the SUA-CdS)	<p><i>Knowledge and understanding</i> Know the basic concepts for a wise use of ICT technologies in the company.</p> <p><i>Applying knowledge and understanding</i> Autonomy in decisions about the right software/service to use in the company.</p> <p><i>Making informed judgements and choices</i> Show that you have acquired autonomous judgment on the choices in relation to the design of a Information System.</p> <p><i>Communicating knowledge and understanding</i> Show that you are able to communicate appropriately the technical characteristics of a Information System.</p> <p><i>Capacities to continue learning</i> Show that you have developed the ability to learn further in-depth studies on topics related to ICT resources that can be used in Information Systems.</p>
Contents	<p><b>Computer architecture.</b> The concepts of analogical magnitude/signal and digital magnitude. Hardware and Software. General scheme of a data processing system. Processor function. The processor units. The coprocessors. The memories of the computer. The central memory. The cache memory. The secondary memories. The ROM memory. The BIOS. The buffer memory. The Input/Output units.</p>

**The numbering systems.**

Positional notation. The binary numbers. Two's Complement system. Floating Point system. The character encoding.

**Boolean algebra and logic circuits.**

Propositional logic. Boolean Variables and Constants. Operations on the set of Boolean Variables. The operators NOT, OR, AND, EXCLUSIVE OR, NOR and NAND. Properties and theorems of Boolean algebra. The logic circuits: the unit of sum.

**The software.**

The concept of algorithm. Constants, variables and instructions of an algorithm.

Programming languages. The machine code. Low-level programming languages. High-level languages.

Program translation processes: compilation and interpretation.

Taxonomy of errors: syntactic errors; semantic errors; logical errors; run-time errors.

The process of software production. The qualities of the software: the correctness; reliability; robustness; efficiency, performance and scalability; usability; maintainability.

Software use licenses: licenses for free and open source software; licenses for proprietary or closed source software.

**The operating system.**

Features of operating systems. The Onion Skin model.

Operating systems monotasking and multitasking. Device managers: drivers. The processor manager. The central memory manager. The file system. The path-name concept of a file/directory.

**Data management.**

Structured data and unstructured data. Structured data management. DBMS and database. Design of a relational database: conceptual and logical data model. The Constraints. The one-to-one relationship. The one-to-many relationship. The many-to-many relationship. The normalization of relational schemes. Super key and primary key to a relationship. Functional dependence. Database management languages. Type of database users.

The SQL language. The SELECT command. The BETWEEN, IN, LIKE, IS NULL operators. Ordered views of tables. Join operation between multiple tables.

Import and export of data: CSV files.

**Internetworking and Cloud Computing.**

Computer Networks. Basic concepts on networks: nodes, protocols and services. Types of Networks: PAN, LAN, MAN, WAN. Circuit-switched and packet networks.

Client-server and peer-to-peer architectures.

Internetwork. Internet. The Web. From hosting to housing. Network storage: DAS, NAS and SAN.

Cloud computing. The five essential features of cloud computing. The three essential models of cloud computing.

The four cloud computing deployment models.

	<p><b>Data Quality.</b> Data Quality problems at the level of attribute/tuple, at the level of a single relation, at the level of multiple relations, at the level of multiple data source.</p> <p><b>Information systems.</b> Resources: data, information, knowledge, processes, software, knowledge workers. Classification of information systems: TPS, MIS, DSS, ESS. OLAP and OLTP. Disaster Recovery. Business Continuity.</p> <p><b>Digital skills of the knowledge worker</b> The electronic document. Copy and duplicate of a electronic document. Digital preservation of an electronic document. Substitutive conservation. Simple electronic signature, advanced electronic signature, qualified electronic signature (digital signature). The concept of Open Data. Publish Open Data.</p>
Course program	
Bibliography	Lecture notes available on the e-learning platform.
Notes	
Teaching methods	Frontal lessons and classroom analysis of concrete cases.
Assessment methods (indicate at least the type written, oral, other)	<p>Attending Students: Those who will be present at 80% of the lessons. First Exemption: Tuesday November 16 2021 starting at 9:00 Second Exemption: Wednesday January 12 2022 starting at 9:00</p> <p>Not Frequent Students: Written test; with the possibility of performing the oral test (with a maximum score of 18/30) only for those who will achieve a mediocre grade in the written test (from 14/30 to 17/30).</p>
Evaluation criteria (Explain for each expected learning outcome what a student has to know, or is able to do, and how many levels of achievement there are.	The results obtained will be evaluated, of all the learning criteria provided, through appropriate questions included in the exemptions and exams.
Further information	