



Programme of Module "Basi di Dati"

- Code: F0137
- Type of course unit: Compulsory (Bachelor Degree in Computer Science curriculum General)
- Level of course unit: Undergraduate Degrees
- Semester: 2

Number of ects credits: (Bachelor Degree in Computer Science) 6 (workload 150 hours)

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1	Course objectives	Following this course, the students will: understand what is a database, from the conceptual, mathematical and practical points of view; become able to develop the conceptual and logical design of a relational database, including both the structure and the operations; understand the basic functionalities of a DBMS (Data Base Management System); acquire notions about advanced aspects and future directions of the field.
2	Course content and learning outcomes (dublin descriptors)	<p>Topics of the module include:</p> <ul style="list-style-type: none"> • Introduction, data models, the relational model (RL). • Relational algebra and calculus, Datalog. • Database Conceptual and Logical Design: Entity Relationship (E-R) diagrams, restructuration and translation into relational schemas. • Normalization of relational schemas. • Advanced databases: object-oriented databases, hints on data warehouses and cloud-computing. • Database Technology: concurrency and fault-tolerance.
3	Course prerequisites	The student should be acquainted with some programming language, so as to understand what a file is, and to have experimented some basic operations on files. The student should possess some basic knowledge of operating systems, namely about the file-system and concurrency. It is mandatory to possess basic notions of mathematical Logic and Set Theory.
4	Teaching methods and language	<p>Lectures and interactive exercise sessions.</p> <p>Language: Italian</p> <p>Reference textbooks</p> <ul style="list-style-type: none"> • Atzeni, Ceri, Paraboschi, Torlone, <i>Basi di Dati: Concetti, Linguaggi e Architetture,</i> McGraw-Hill.
5	Assessment methods	The exam of the Database Module is composed of a mandatory written test and an optional oral test. The oral test can be required: by the student in order to improve grades; by the teacher in case the student's written test has serious omissions or mistakes.