

## SYLLABUS COURSE DESCRIPTION

<b>COURSE TITLE</b>	<b>Database System</b>
<b>COURSE CODE</b>	75011
<b>SCIENTIFIC SECTOR</b>	ING-INF/01
<b>DEGREE</b>	Bachelor in Computer Science and Engineering
<b>SEMESTER</b>	1 <sup>st</sup> Semester
<b>YEAR</b>	2 <sup>nd</sup> year
<b>CREDITS</b>	8

<b>TOTAL LECTURING HOURS</b>	48
<b>TOTAL LAB HOURS</b>	24
<b>PREREQUISITES</b>	Students should have a solid mathematical foundation and be familiar with the basic programming concepts, data structures and algorithms. These prerequisites are covered in the following courses: Analysis, Introduction to Programming, Programming Project, and Data Structures and Algorithms.
<b>COURSE PAGE</b>	<a href="https://ole.unibz.it/">https://ole.unibz.it/</a> <a href="http://www.inf.unibz.it/dis/teaching/DBS/">http://www.inf.unibz.it/dis/teaching/DBS/</a>

<b>SPECIFIC EDUCATIONAL OBJECTIVES</b>	<ul style="list-style-type: none"> <li>• Type of course: "caratterizzanti" for L-31 and for L-8</li> <li>• Scientific area: "discipline informatiche" for L-31 and "formazione interdisciplinare" for L-8</li> </ul> <p>Students attending this course will be able to model and design database schemas from the conceptual design down to the physical design. They will also be able to insert, modify, and query data stored in database systems. Additionally, they also gain a deeper understanding of techniques and methods used in database systems to keep the data safe and consistent.</p>
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<b>LECTURER</b>	Sven Helmer, <a href="http://www.inf.unibz.it/~shelmer/">http://www.inf.unibz.it/~shelmer/</a>
<b>SCIENTIFIC SECTOR OF THE LECTURER</b>	ING-INF/05
<b>TEACHING LANGUAGE</b>	English
<b>OFFICE HOURS</b>	POS 2.16, <a href="mailto:shelmer@inf.unibz.it">shelmer@inf.unibz.it</a> , 0471 016190
<b>TEACHING ASSISTANT</b>	Panagiotis Symeonidis Marco Montali
<b>OFFICE HOURS</b>	TBA

<b>LIST OF TOPICS COVERED</b>	<ul style="list-style-type: none"> <li>• Data Modeling</li> <li>• Relational Model and SQL</li> <li>• Database Design Theory</li> <li>• Physical Data Storage</li> <li>• Query Processing</li> <li>• Recovery</li> <li>• Multi-User Synchronization</li> <li>• Database Applications</li> </ul>
<b>TEACHING FORMAT</b>	Frontal classroom lecture plus exercises
<b>LEARNING OUTCOMES</b>	<p><b>Knowledge and understanding</b></p> <ul style="list-style-type: none"> <li>• know in detail the principles of relational database systems and methods for designing and developing databases;</li> </ul> <p><b>Applying knowledge and understanding</b></p> <ul style="list-style-type: none"> <li>• be able to develop and query relational databases;</li> <li>• be able to apply the own knowledge to the analysis, design, development and testing of information systems which satisfy given requirements;</li> </ul> <p><b>Ability to make judgments</b></p> <ul style="list-style-type: none"> <li>• be able to collect useful data and to judge information systems and their applicability;</li> <li>• be able to work autonomously according to the own level of knowledge;</li> </ul> <p><b>Communication skills</b></p> <ul style="list-style-type: none"> <li>• be able to work in teams to implement software systems;</li> </ul> <p><b>Ability to learn</b></p> <ul style="list-style-type: none"> <li>• have acquired learning capabilities that enable them to carry out project activities in companies, public institutions or in distributed development communities;</li> <li>• be able to learn the innovative features of state-of-the-art technologies and information systems;</li> </ul>
<b>ASSESSMENT</b>	<ul style="list-style-type: none"> <li>• Project work to test knowledge application skills and communication skills, done in small groups who present their work orally</li> <li>• Written exam with verification questions and questions to test knowledge application skills</li> </ul>
<b>ASSESSMENT LANGUAGE</b>	English
<b>EVALUATION CRITERIA AND CRITERIA FOR AWARDING MARKS</b>	<p>20% project work 80% written examples</p> <p>relevant for assessment 1: ability to work in teams, skill in applying knowledge in a practical setting, ability to summarize in own words relevant for assessment 2: clarity of answers, ability to recall principles and methods used in database systems, skill in applying knowledge such as developing and querying databases</p>

REQUIRED READINGS	Silberschatz, Korth, Sudarshan: <i>Database System Concepts</i> , 4 <sup>th</sup> edition (or later), McGraw Hill, 2002. <a href="#">Available at University Library: 13-General Collection (ST 271)</a>
SUPPLEMENTARY READINGS	Garcia-Molina, Ullman, Widom: <i>Database Systems: The Complete Book</i> , Prentice-Hall 2002.
SOFTWARE USED	-