

## COURSE DESCRIPTION – ACADEMIC YEAR 2016/2017

<b>Course title</b>	<b>System Security</b>
<b>Course code</b>	76006
<b>Scientific sector</b>	ING-INF/05
<b>Degree</b>	European Master in Software Engineering (LM-18)
<b>Semester</b>	2
<b>Year</b>	1
<b>Credits</b>	8
<b>Modular</b>	No

<b>Total lecturing hours</b>	48
<b>Total lab hours</b>	24
<b>Total exercise hours</b>	--
<b>Attendance</b>	Recommended especially for the labs.
<b>Prerequisites</b>	Students should have a solid mathematical foundation and be familiar with basic programming concepts, data structures and algorithms. These prerequisites are covered in any Bachelor degree in Computer Science.
<b>Course page</b>	<a href="https://ole.unibz.it/">https://ole.unibz.it/</a>

<b>Specific educational objectives</b>	<p>The course belongs to the type "caratterizzanti – discipline informatiche"- "Advanced Topic in Software Engineering" (EMSE - ATSE).</p> <p>The main aim of this module is to provide an introduction to the field of information security. The students learn about the technical as well as the management side of security in information systems. They acquire knowledge about fundamental principles of security and also about practical approaches to securing information systems.</p>
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<b>Lecturer</b>	<a href="#">Sven Helmer</a>
<b>Contact</b>	<a href="#">Piazza Domenicani 3</a> , Office 2.16, <a href="mailto:shelmer@inf.unibz.it">shelmer@inf.unibz.it</a> , 0471 016190, <a href="http://www.inf.unibz.it/~shelmer/">http://www.inf.unibz.it/~shelmer/</a>
<b>Scientific sector of lecturer</b>	ING-INF/05
<b>Teaching language</b>	English
<b>Office hours</b>	During the lecture time span, Faculty of CS, <a href="#">Piazza Domenicani 3</a> , Office 2.16, by previous appointment via e-mail.
<b>Lecturing Assistant (if any)</b>	TBD
<b>Contact LA</b>	TBD
<b>Office hours LA</b>	TBD
<b>List of topics</b>	<ul style="list-style-type: none"> <li>• Cryptography</li> <li>• Cryptographic Protocols</li> <li>• Network Attack and Defense</li> <li>• Administrative Issues</li> <li>• Security Protocols</li> <li>• Social Engineering</li> <li>• Usability</li> <li>• Risk Assessment</li> </ul>
<b>Teaching format</b>	Frontal classroom lecture plus lab sessions.

<p><b>Learning outcomes</b></p>	<p>Knowledge and understanding</p> <ul style="list-style-type: none"> <li>• Have solid knowledge in both foundations and applications of different areas of Computer Science</li> <li>• Know in detail principles, structures and use of elaboration systems</li> <li>• Know the main methods and techniques for designing, creating, and maintaining software products and services.</li> <li>• Understand methods of mathematics and of statistics that support Information Technology and its applications.</li> </ul> <p>Applying knowledge and understanding</p> <ul style="list-style-type: none"> <li>• Be able to define an innovative technical solution to an application problem, which respects constraints and requirements of technical, functional and organizational kind</li> <li>• Be able to integrate, adapt, and improve organizational and business strategies with Information Technology.</li> <li>• Be able to design and execute experimental analyses on information systems or their components.</li> </ul> <p>Making judgments</p> <ul style="list-style-type: none"> <li>• Be able to independently select the documentation required to keep abreast of the frequent technological innovations in the field by using a wide variety of documentary sources: books, web, magazines.</li> </ul> <p>Communication skills</p> <ul style="list-style-type: none"> <li>• Be able to coordinate the work of a project team and to interact positively with members of the group.</li> </ul> <p>Ability to learn</p> <ul style="list-style-type: none"> <li>• Be able to independently keep up to date with developments in the most important areas of Computer Science.</li> </ul>
<p><b>Assessment</b></p>	<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>
<p><b>Assessment language</b></p>	<p>English</p>
<p><b>Evaluation criteria and criteria for awarding marks</b></p>	<ul style="list-style-type: none"> <li>• 20% project work</li> <li>• 80% written examples</li> </ul> <p>Relevant for assessment 1: ability to work in teams, skill in applying knowledge in a practical setting, ability to summarize in own words.</p> <p>Relevant for assessment 2: clarity of answers, ability to recall principles and methods used in system security, skill in applying knowledge such as testing the security of systems</p>
<p><b>Required readings</b></p>	<p>Anderson: Security Engineering, John Wiley &amp; Sons, 2008 also available online: <a href="http://www.cl.cam.ac.uk/~rja14/book.html">http://www.cl.cam.ac.uk/~rja14/book.html</a></p>
<p><b>Supplementary readings</b></p>	<p>Schneier: Applied Cryptography, John Wiley &amp; Sons, 2015</p>
<p><b>Software used</b></p>	<p>--</p>