

COURSE DESCRIPTION – ACADEMIC YEAR 2017/2018

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

Total lecturing hours	48
Total lab hours	24
Total exercise hours	--
Attendance	Recommended especially for the labs.
Prerequisites	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.
Course page	https://ole.unibz.it/ http://www.inf.unibz.it/dis/teaching/INFSEC/

Specific educational objectives	<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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Lecturer	Sven Helmer
Contact	Piazza Domenicani 3, Office 2.16, shelmer@inf.unibz.it , 0471 016190
Scientific sector of lecturer	ING-INF/05
Teaching language	English
Office hours	Office 2.16, shelmer@inf.unibz.it , 0471 016190
Lecturing Assistant (if any)	---
Contact LA	---
Office hours LA	---
List of topics	<ul style="list-style-type: none"> • Cryptography • Cryptographic Protocols • Network Attack and Defense • Administrative Issues • Security Protocols • Social Engineering • Usability • Risk Assessment
Teaching format	Frontal classroom lecture plus lab sessions

Learning outcomes	<p>Knowledge and understanding</p> <ul style="list-style-type: none"> • Know the main methods and techniques for designing, creating, and maintaining software products and services. • Understand methods of mathematics and of statistics that support Information Technology and its applications. <p>Applying knowledge and understanding</p> <ul style="list-style-type: none"> • Be able to integrate, adapt, and improve organizational and business strategies with Information Technology. • Be able to design and execute experimental analyses on information systems or their components. <p>Making judgments</p> <ul style="list-style-type: none"> • Must have the ability 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. <p>Communication skills</p> <ul style="list-style-type: none"> • Must be able to coordinate the work of a project team and to interact positively with members of the group. <p>Learning skills</p> <ul style="list-style-type: none"> • Must be able to independently keep up to date with developments in the most important areas of Computer Science.
Assessment	<ul style="list-style-type: none"> • Project work to test knowledge application skills and communication skills, done in small groups who present their work orally • Written exam with verification questions and questions to test knowledge application skills
Assessment language	English
Evaluation criteria and criteria for awarding marks	<ul style="list-style-type: none"> • 20% project work • 80% written examples <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>
Required readings	<p>Anderson: Security Engineering, John Wiley & Sons, 2008 also available online: http://www.cl.cam.ac.uk/~rja14/book.html</p>
Supplementary readings	Schneier: Applied Cryptography, John Wiley & Sons, 2015
Software used	--