






Teacher(s)	Sadre Ramin ;
Language :	English > French-friendly
Place of the course	Louvain-la-Neuve
Main themes	<ul style="list-style-type: none"> <li>• Forged E-Mail, Spam and Malwares,</li> <li>• Basics in cryptography,</li> <li>• Network and Application Vulnerabilities: IT spoofing, session hijacking, exploits, sniffing,</li> <li>• Firewalls,</li> <li>• Proxies, IDS, Hacking methods,</li> <li>• Secure communications,</li> <li>• Security at the User Level.</li> </ul>
Learning outcomes	<p><b>At the end of this learning unit, the student is able to :</b></p> <p>Given the learning outcomes of the "Master in Computer Science and Engineering" program, this course contributes to the development, acquisition and evaluation of the following learning outcomes:</p> <ul style="list-style-type: none"> <li>• INFO1.1-3</li> <li>• INFO2.1-5</li> <li>• INFO5.2, INFO4-5</li> <li>• INFO6.1, INFO6.3, INFO6.4</li> </ul> <p>Given the learning outcomes of the "Master [120] in Computer Science" program, this course contributes to the development, acquisition and evaluation of the following learning outcomes:</p> <p>1</p> <ul style="list-style-type: none"> <li>• SINF1.M1</li> <li>• SINF2.1-5</li> <li>• SINF5.2, SINF4-5</li> <li>• SINF6.1, SINF6.3, SINF6.4</li> </ul> <p>The course provides a broad view of computer system security that provides a general knowledge of the field for non - specialists and a base for future specialists.</p> <p>Students completing successfully this course will be able to</p> <ul style="list-style-type: none"> <li>• defend the need for protection and security, and the role of ethical considerations in computer use,</li> <li>• identify security strengths and weaknesses in computer systems,</li> <li>• explain the problems addressed by digital forensics and outline the basic principles involved in its practice,</li> <li>• compare and contrast current methods for implementing security.</li> </ul>
Evaluation methods	<p>Mode of evaluation for the June session:</p> <ul style="list-style-type: none"> <li>• Exam (60% of the final mark)</li> <li>• Project activities in groups (30% of the final mark)</li> <li>• Individual project activity (10% of the final mark)</li> </ul> <p>August session: The project activities (in groups and individual) cannot be redone for the August session and the student will keep the grades obtained for them in the June session with the weights for the final mark as indicated above.</p> <p>The professor may request a student to go through an additional oral exam as a complement of the exam and/or of the project activities, in cases including, but not limited to, technical issues, or suspicion of irregularities.</p>
Teaching methods	<ul style="list-style-type: none"> <li>• Lectures</li> <li>• Scientific readings</li> <li>• Practical lab sessions</li> <li>• Project activities</li> </ul>
Content	<p>The course provides an introduction to a wide range of security problems linked to computer systems, with a particular focus on attacks against networked systems. We will see major attack mechanisms (code injection, Denial of Service, etc.), concrete attacks, as well as defense mechanisms such as encryption, firewalls, and intrusion detection. The latter includes state of the art signature based detection and machine-learning based anomaly detection.</p>

Inline resources	Teams and/or Moodle
Other infos	<p>LINFO2347 vs LINFO2144</p> <ul style="list-style-type: none"> <li>• LINFO2347 is an introduction course to computer system, software and network security, while class LINFO2144 is an advanced course on software security.</li> </ul> <p>Background:</p> <ul style="list-style-type: none"> <li>• LINFO1341 or LELEC2920: Computer networks. The most important topics that will be used in LINFO2347 are: HTTP, DNS, IP, TCP, UDP, ARP.</li> <li>• LINFO1252 or LINFO2241: C language, computer architecture, operating systems</li> <li>• INFO and SINF students are both compliant with these prerequisites. Student who do not know if their background allows them the attend the course (e.g. students from ELEC, ELME or MAP) should contact the teacher.</li> </ul>
Faculty or entity in charge	INFO

Programmes containing this learning unit (UE)				
Program title	Acronym	Credits	Prerequisite	Learning outcomes
Master [120] in Electrical Engineering	<a href="#">ELEC2M</a>	5		
Master [120] in Computer Science and Engineering	<a href="#">INFO2M</a>	5		
Master [120] in Computer Science	<a href="#">SINF2M</a>	5		
Master [120] in Mathematical Engineering	<a href="#">MAP2M</a>	5		
Master [120] in Data Science Engineering	<a href="#">DATE2M</a>	5		
Master [120] in Data Science: Information Technology	<a href="#">DATI2M</a>	5		