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Teacher(s)	Sadre Ramin ;
Language :	English
Place of the course	Louvain-la-Neuve
Main themes	<ul style="list-style-type: none"> • Forged E-Mail, Spam and Malwares, • Basics in cryptography, • Network and Application Vulnerabilities: IT spoofing, session hijacking, exploits, sniffing, • Firewalls, • Proxies, IDS, Hacking methods, • Secure communications, • Security at the User Level.
Learning outcomes	<p>At the end of this learning unit, the student is able to :</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"> • INFO1.1-3 • INFO2.1-5 • INFO5.2, INFO4-5 • INFO6.1, INFO6.3, INFO6.4 <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"> • SINF1.M1 • SINF2.1-5 • SINF5.2, SINF4-5 • SINF6.1, SINF6.3, SINF6.4 <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"> • defend the need for protection and security, and the role of ethical considerations in computer use, • identify security strengths and weaknesses in computer systems, • explain the problems addressed by digital forensics and outline the basic principles involved in its practice, • compare and contrast current methods for implementing security.
Evaluation methods	<p>Mode of evaluation in the June session:</p> <ul style="list-style-type: none"> • Group projects (35% of the final mark) • Exam (65% of the final mark) <p>If the student fails to obtain at least 50% of the total points in the June session, the student can repeat only the failed part(s) (exam and/or projects) in the August session. However, in that case the project has to be done alone and a new topic might be assigned.</p>
Teaching methods	The course consists of a series of lectures and accompanying exercises and project(s). The teaching method can change depending on the circumstances and the number of participating students or for other reasons. Face-to-face classes as well as remote teaching or a mix of the two methods are possible.
Content	The course covers a wide spectrum of the security problems related to computer systems and principles of building secure systems. This course will introduce fundamentals of computer security and applied cryptography. Topics include software vulnerabilities, malware, security in web applications, networking and security, and applied cryptography.
Inline resources	Moodle

Bibliography	<p>Livres de références non obligatoires</p> <ul style="list-style-type: none"> • 'Introduction to Computer Security' by Michael Goodrich & Roberto Tamassia (ISBN-10: 0321512944, ISBN-13: 9780321512949) • 'Security Engineering: A Guide to Building Dependable Distributed Systems' 2nd ed. by Ross J. Anderson (ISBN-10: 0470068523, ISBN-13: 978-0470068526) <p>Support obligatoire: transparents en ligne sur le site du cours sur Moodle</p>
Other infos	<p>LINFO2347 vs LINFO2144</p> <ul style="list-style-type: none"> • LINFO2347 is an introduction course to computer system, software and network security, while class LINFO2144 is an advanced course on software security. <p>Background:</p> <ul style="list-style-type: none"> • LINFO1341 or LELEC2920: Background in computer networks • LINFO1252 or LINFO2241: C language, computer architecture, operating systems • INFO and SINF students are both compliant with these prerequisites. Student who do not know if their background allows them to attend the course (e.g. students from ELEC, ELME or MAP) should contact the teacher. • Weaknesses in networks can be filled by reading the book "Computer Network" by Andrew Tanenbaum. The most important topics that will be used in LINFO2347 are: HTTP, DNS, IP, TCP, UDP, ARP
Faculty or entity in charge	INFO

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