



## 1. General information

Course: SECURITY IN COMPUTING SYSTEMS  
Type: CORE COURSE  
Degree: 346 - DEGREE IN COMPUTER SCIENCE AND ENGINEERING  
Center: 604 - SCHOOL OF COMPUTER SCIENCE AND ENGINEERING (AB)  
Year: 4

Main language: Spanish

Use of additional languages:

Web site:

Code: 42357

ECTS credits: 6

Academic year: 2019-20

Group(s): 13

Duration: First semester

Second language: English

English Friendly: Y

Bilingual: N

Lecturer: JOSE LUIS MARTINEZ MARTINEZ - Group(s): 13				
Building/Office	Department	Phone number	Email	Office hours
ESII-1.C.11	SISTEMAS INFORMÁTICOS	2294	jose.luis.martinez@uclm.es	Publicada en la página de la ESII. Se atenderá cualquier día y hora previa cita a través del mail

## 2. Pre-Requisites

Mandatory subject for the Technology Specific Information Technology Subject, it is advisable to have completed the Basic Training modules and the Common module to the Computing Branch (Modules I and II). It is therefore recommended to have clear the basic c

## 3. Justification in the curriculum, relation to other subjects and to the profession

This subject is integrated in the subject of Technologies and Information Systems of the curriculum.

Computer security is a common competence in all the Computer Engineering plans, included in the White Paper and in all IEEE / ACM curricular recommendations.

Safety is a specific competence, but it affects all subjects in the curriculum. The weak link principle states that a computer system is as safe as its most vulnerable point. This necessarily translates into a multidisciplinary subject, where aspects of very low level and as

## 4. Degree competences achieved in this course

## Course competences

Code	Description
INS2	Organising and planning skills.
INS5	Argumentative skills to logically justify and explain decisions and opinions.
PER2	Ability to work in multidisciplinary teams.
SIS1	Critical thinking.
SIS3	Autonomous learning.
SIS4	Adaptation to new scenarios.
SIS5	Creativity.
TI7	Ability to understand, apply, and manage the reliability and safety of digital systems.

## 5. Objectives or Learning Outcomes

## Course learning outcomes

Description  
Configuration of secure networks using firewalls and virtual private networks.  
Knowledge about the latest techniques in transaction security, as well as current legislation regarding data protection.  
Design of security and contingency plans in Data Processing Centers (DPCs).  
Management of security in computing systems.  
Identification of vulnerabilities in the computer system, analyze and classify attacks.  
Use of encryption and cryptography techniques to protect information.

## 6. Units / Contents

## Unit 1: Introduction

- Unit 1.1 Presentation
- Unit 1.2 Introduction to Information Security

## Unit 2: Ethical Hacking

- Unit 2.1 Footprinting & Open Source Intelligence
- Unit 2.2 Fingerprinting & Enumeration
- Unit 2.3 Access Attacks
- Unit 2.4 NavajaNegra Conference
- Unit 2.5 Attack of data networks and social engineering
- Unit 2.6 Exploiting vulnerabilities
- Unit 2.7

## Unit 3: Web Auditory

- Unit 3.1 OWASP & Proxy Web
- Unit 3.2 XSS
- Unit 3.3 CSRF+LFI+RFI+CLI
- Unit 3.4 SQLi
- Unit 3.5 Blind SQLi and Sqlmap
- Unit 3.6

## 7. Activities, Units/Modules and Methodology

Training Activity	Methodology	Related Competences (only degrees before RD 822/2021)	ECTS	Hours	As	Com	R	Description
Class Attendance (theory) [ON-SITE]	Combination of methods	TI7	0.96	24	Y	N	Y	
Class Attendance (practical) [ON-SITE]	Practical or hands-on activities	TI7	1.2	30	Y	N	Y	
Project or Topic Presentations [ON-SITE]	Group Work	INS2 INS5 PER2 SIS1 SIS3 SIS4 SIS5	0.12	3	Y	N	N	
Final test [ON-SITE]	Assessment tests	INS5 SIS1	0.2	5	Y	Y	Y	
Writing of reports or projects [OFF-SITE]	Group Work	INS2 INS5 PER2 SIS1 SIS3 SIS4 SIS5	0.8	20	Y	N	Y	
Study and Exam Preparation [OFF-SITE]	Self-study	INS2 INS5 PER2 SIS1 SIS3 SIS4 SIS5 TI7	2.56	64	Y	N	Y	
On-line Activities [OFF-SITE]	Assessment tests	INS2 SIS4	0.16	4	Y	N	Y	
Total:			6	150				
Total credits of in-class work: 2.48			Total class time hours: 62					
Total credits of out of class work: 3.52			Total hours of out of class work: 88					

As: Assessable training activity

Com: Training activity of compulsory overcoming

R: Rescheduling training activity

## 8. Evaluation criteria and Grading System

Evaluation System	Grading System		Description
	Face-to-Face	Self-Study Student	
Progress Tests	50.00%	0.00%	
Final test	25.00%	0.00%	
Final test	25.00%	0.00%	
Total:	100.00%	0.00%	

## Evaluation criteria for the final exam:

[MODALITY WITH CONTINUOUS EVALUATION]

-Theory:

- Theoretical Final Examination: 25% (Minimum score: 4 points, Compensable with the tests of the continuous assessment)

-Practices:

- Practical Laboratory Final Exam: 25% (Minimum score: 4 points) Compensable with the tests of the continuous evaluation

-Continuous assessment:

Test Evaluables: 40% A test of 10 V / F questions will be carried out at the end of each sub-topic.

- Job:

- Practical work defended in class: 10%

[MODALITY WITHOUT CONTINUOUS EVALUATION]

- Theory:
- Final Exam: 50% (Minimum score: 4 points, Compensable with the practical part)
- Practices:
- Final Exam of Practices: 50% (Minimum score: 4 points, Compensable with the theory part)

In both modalities, each part is saved for the extraordinary call if it exceeds 5

The student who does not pass all the minimum required tests (minimum score of 4 both in the theory and practical exam) in the subject will appear as a failure and will have a final grade corresponding to the average grade between the theory and practice exam. In case the average of approved, will have a note of suspense, 4.

**Specifications for the resit/retake exam:**

In the extraordinary call only the final theory exam and the practical case in the laboratory can be recovered, the test and work notes are kept from the ordinary one. If the student wishes, it can be presented according to the format WITH OR WITHOUT CONTINUOUS EVALUATION MODALITY, that is, with or without taking into account the results of the continuous evaluation.

**Specifications for the second resit / retake exam:**

Same as the extraordinary

9. Assignments, course calendar and important dates	
Not related to the syllabus/contents	
Hours	hours
Project or Topic Presentations [PRESENCIAL][Group Work]	3
Final test [PRESENCIAL][Assessment tests]	5
Writing of reports or projects [AUTÓNOMA][Group Work]	20
On-line Activities [AUTÓNOMA][Assessment tests]	4
Unit 1 (de 3): Introduction	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Combination of methods]	4
Study and Exam Preparation [AUTÓNOMA][Self-study]	2
Unit 2 (de 3): Ethical Hacking	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Combination of methods]	4
Class Attendance (practical) [PRESENCIAL][Practical or hands-on activities]	10
Study and Exam Preparation [AUTÓNOMA][Self-study]	24
Unit 3 (de 3): Web Auditory	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Combination of methods]	10
Class Attendance (practical) [PRESENCIAL][Practical or hands-on activities]	18
Study and Exam Preparation [AUTÓNOMA][Self-study]	24
Global activity	
Activities	hours
Class Attendance (theory) [PRESENCIAL][Combination of methods]	18
Class Attendance (practical) [PRESENCIAL][Practical or hands-on activities]	28
Project or Topic Presentations [PRESENCIAL][Group Work]	3
Final test [PRESENCIAL][Assessment tests]	5
Writing of reports or projects [AUTÓNOMA][Group Work]	20
Study and Exam Preparation [AUTÓNOMA][Self-study]	50
On-line Activities [AUTÓNOMA][Assessment tests]	4
Total horas: 128	

10. Bibliography and Sources						
Author(s)	Title/Link	Publishing house	Citv	ISBN	Year	Description
Catherine Paquet	Implementing Cisco IOS Network Security	Cisco Press			2009	
Fundamentos de Seguridad en Redes	Fundamentos de Seguridad en Redes	Cisco Press			2008	
Kurose, J., Ross, K.	Redes de Computadores. Un enfoque descendente basado en Internet	Pearson Education			2003	
Michael Walkings, Kevin Wallace	CCNA Security Official Exam Certification Guide	Cisco Press			2008	
William Stallings	Computer security. Principles and Practice	Pearson International Edition			2008	
William Stallings	Fundamentos de seguridad en redes	Pearson Prentice Hall			2003	
varios	Colección Pack Completa	0xword				Colección de varios ejemplares
	http://0xword.com/es/					
	Estándares de la serie ISO/IEC					
	www.aenor.es, www.iso.org y www.iso27000.es					