

Course Syllabi

CODE 302

NAME Cybersecurity in Computer Systems

Credits 6 ECTS

Period Fall Semester

Course Specifications

The course "Cybersecurity in Computer Systems" represents the first contact that students have in the bachelor's degree with subjects related to security and privacy in computer and communication environments. Therefore, the syllabus is designed so that students acquire a broad understanding of the techniques, mechanisms, protocols, and tools that provide protection at different levels of these environments, from the lowest level (networks) to the highest levels (applications and services).

Objectives and contents

1. Introduction
 - 1.1 Basic security concepts and principles
 - 1.2 Security services and mechanisms
2. Basic Cryptographic Techniques
 - 2.1 Introduction to cryptography
 - 2.2 Symmetric and asymmetric algorithms
 - 2.3 Other cryptographic primitives: Hash functions and MACs
3. Schemes, Protocols, and Supporting Mechanisms
 - 3.1 Key management
 - 3.2 Access control mechanisms
 - 3.3 Advanced cryptographic protocols and mechanisms
4. Security and Privacy in Telematic Applications
 - 4.1 Application security: e-mail and electronic payments
 - 4.2 User privacy in applications
5. Security in TCP/IP Networks
 - 5.1 Transport Layer security
 - 5.2 Internet Layer security
 - 5.3 Wireless network security

Assessment

The assessment in the first ordinary examination period will be carried out as follows:

- 70% of the final grade will be based on two written theoretical exams (PT1, PT2). The two tests/midterm exams will be held during the course's class schedule. If, due to time constraints or calendar issues, the second part (PT2) cannot be carried out during class hours, it will be held on the date established for the final

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examination. Each test (PT1 and PT2) will have an equal weighting, accounting for 50% of this component each.

- 30% of the final grade will be based on practical contents and laboratory activities. The assessment of this component will be based on two practical tests (PP1, PP2) (e.g., online tests, online practical exercises, etc.), each weighted at 50%.

In both components, the theoretical midterm exams (PT1 and PT2, accounting for 70%) and the practical tests (PP1 and PP2, accounting for 30%), students must obtain a minimum grade of 5 out of 10 for the corresponding component to contribute to the final grade. Students who do not achieve a passing final grade (≥ 5.0) must take the second ordinary examination period or any other extraordinary examination periods.

A student will be considered to have taken this first ordinary examination period if they complete 50% of the continuous assessment activities.

Additionally, the application of specific learning methodologies will be considered during the assessment process of the first ordinary examination period. Students who participate in these activities must attend classes; therefore, attendance will be considered. Depending on the activity, students may obtain up to 0.5 extra points added to their final grade, if they have successfully passed the course (with a grade ≥ 5.0). This additional grade will also be retained for the second ordinary examination period, but not for extraordinary examination periods.

The assessment in the second ordinary examination period is considered a recovery procedure for the continuous assessment carried out during the first ordinary examination period. This assessment will be performed through a written examination, which will evaluate the content block(s) (theoretical (70%) and/or practical (30%)) that were not passed in the first ordinary examination period. It should be noted that the design of the individual practical assignments makes it impossible to complete them outside the teaching period of the course; therefore, the assessment of these practical activities in this examination period must be carried out through a written authorship examination.

Finally, if a student wishes to opt for the assessment of 100% of the course during this second ordinary examination period, they will have the option of taking a written examination that evaluates both the theoretical content block (70%) and the practical content block (30%). This final option (taking the 100% assessment of the course) automatically implies forfeiting the grade obtained during the first ordinary examination period.

For extraordinary examination periods and extraordinary final-year examination periods, students must pass 100% of the course through a single final assessment — a written examination — covering both the theoretical content block (70%) and the practical content block (30%).

It should be noted that part-time students and high-level university athletes are not required to attend classes, if they notify the corresponding teaching staff. However, they may not obtain the additional points from the activities carried out in class ([0.0–0.5]). Regarding the midterm exams of the first ordinary examination period (PT1-2 accounting for 70%, PP1-2 accounting for 30%) and the written examinations (30% and 70%) in the

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remaining examination periods, these groups of students will be subject to the same conditions as the rest of the students and must complete them in person.

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