

Mobile device security

Academic Year: (2023 / 2024)

Review date: 28-04-2023

Department assigned to the subject: Computer Science and Engineering Department

Coordinating teacher: PERIS LOPEZ, PEDRO

Type: Electives ECTS Credits : 6.0

Year : 4 Semester :

REQUIREMENTS (SUBJECTS THAT ARE ASSUMED TO BE KNOWN)

Cryptography and Computer Security (course 3 / semester 1).

Computer Networks (course 3 / semester 1).

Security Engineering applied to computer engineering / to information systems (course 3 / semester 2).

SKILLS AND LEARNING OUTCOMES

Complement the basic, transversal and compulsory knowledge of the Degree according to the student's preferences.

DESCRIPTION OF CONTENTS: PROGRAMME

1. Mobile computing security overview.
2. Mobile infrastructure vulnerabilities.
 - a. Vulnerabilities
 - b. Mitigation techniques
3. Mobile communication vulnerabilities.
 - a. Vulnerabilities
 - b. Mitigation techniques
4. Mobile device vulnerabilities.
 - a. Vulnerabilities
 - b. Mitigation techniques
5. Mobile platform vulnerabilities.
 - a. Vulnerabilities
 - b. Mitigation techniques
6. Mobile application vulnerabilities.
 - a. Vulnerabilities
 - b. Mitigation techniques

LEARNING ACTIVITIES AND METHODOLOGY

AF1. THEORETICAL-PRACTICAL CLASSES. 1.5 ECTS with full attendance. They will present the knowledge that students should acquire. They will receive the class notes and will have basic reference documents to facilitate the follow-up of the classes and the development of the subsequent work. Exercises and problems that students may have, will be solved and workshops and evaluation tests will be carried out to develop the necessary skills.

AF2. TUTORIALS. 0.25 ECTS with full attendance. Individualized (individual tutorials) or group (collective tutorials) assistance to students will be provided by the teacher.

AF3. INDIVIDUAL OR GROUP STUDENT WORK. 3.75 ECTS with 0% attendance

AF8: WORKSHOPS AND LABORATORIES 0.25 ECTS with full attendance

AF9: FINAL EXAM. 0.25 ECTS with full attendance. In which the knowledge, skills and abilities acquired throughout the course will be assessed globally.

MD1: CLASS THEORY. Exhibitions in the teacher's class with support of computer and audiovisual media, in which the main concepts of the subject are developed and materials and bibliography are provided to complement the students' learning.

MD2: PRACTICES. Resolution of practical cases, problems, etc. raised by the teacher individually or in groups.

MD3: TUTORIALS. Individualized assistance (individual tutorials) or group (collective tutorials) to students by the teacher.

MD6: LABORATORY PRACTICES. Applied / experimental teaching to workshops and laboratories under the supervision of a tutor.

ASSESSMENT SYSTEM

SE1: FINAL EXAMINATION In which the knowledge, skills and abilities acquired throughout the course will be assessed globally.

SE2: CONTINUOUS EVALUATION. Work, presentations, debates, exhibitions in class, exercises, practices and work in the workshops throughout the course will be evaluated.

% end-of-term-examination:	30
% of continuous assessment (assignments, laboratory, practicals...):	70

BASIC BIBLIOGRAPHY

- Androulidakis, I. Mobile Phone Security and Forensics: A Practical Approach. , Springer, 2022
- Bergman, N., Stanfield, M., Rouse, J., Scambray, J., et al. Hacking Exposed Mobile: Security Secrets & Solutions. , McGraw Hill Osbourne Media: New York, NY, 2013
- Buttyan, L. and Hubaux, J. Security and Cooperation in Wireless Networks: Thwarting Malicious and Selfish Behavior in the Age of Ubiquitous Computing. , Cambridge University Press, 2007

ADDITIONAL BIBLIOGRAPHY

- Jeff Six Application Security for the Android Platform, O'Really Media, Inc, 2011
- Johnny Cache, Joshua Wright, Vincent Liu. Hacking wireless exposed: wireless security secrets and solutions., McGraw-Hill, 2010
- Pragati Ogal Rai Android Application Security Essentials, Packt Publishing, 2013

BASIC ELECTRONIC RESOURCES

- Apple Inc. . iOS security guide: https://manuals.info.apple.com/MANUALS/1000/MA1902/en_US/apple-platform-security-guide.pdf
- Google Inc. . Android security for developers: <https://developer.android.com/topic/security>