

Academic Year: ( 2022 / 2023 )

Review date: 14-06-2022

Department assigned to the subject: Department of Computer Science and Engineering

Coordinating teacher: ESTEVEZ TAPIADOR, JUAN MANUEL

Type: Compulsory ECTS Credits : 6.0

Year : 5 Semester : 1

## DESCRIPTION OF CONTENTS: PROGRAMME

1. Introduction to Cybersecurity
  - 1.1. What is cybersecurity?
  - 1.2. The CIA Triad
  - 1.3. Vulnerabilities, Threats, Risks, and Controls
  - 1.4. Adversaries
  - 1.5. Design Principles
  - 1.6. Research Areas in Cybersecurity
2. Authentication
  - 2.1. User Authentication
  - 2.2. Authentication Factors
  - 2.3. Passwords and Password Managers
  - 2.4. Biometric Authentication
  - 2.5. Federated Identity
3. Access Control
  - 3.1. The Protection Problem
  - 3.2. Access Control Models
  - 3.3. Access Control in Linux (I): Credentials and the Permission System:
  - 3.4. Access Control in Linux (II): POSIX ACLs and Capabilities
4. Network Security
  - 4.1. Communication Security
  - 4.2. TCP/IP Security
  - 4.3. Network Discovery and Scanning
  - 4.4. Web Security
  - 4.5. Firewalls
  - 4.6. Intrusion Detection Systems
5. Security Protocols: TLS
  - 5.1. History and Design Goals.
  - 5.2. The Handshake Protocol
  - 5.3. The Record Protocol
  - 5.4. Interception and Certificate Pining
6. Vulnerabilities
  - 6.1. Vulnerability Types
  - 6.2. Numbering (CVE) and Metrics (CVSS)
  - 6.3. Life Cycle of a Vulnerability
7. Malware
  - 7.1. Malicious Code
  - 7.2. Types
  - 7.3. Payloads, Propagation and Activation
  - 7.4. Case Studies
8. Cybersecurity Regulation
  - 8.1. Regulation in the US
  - 8.2. Regulation in the EU
  - 8.3. Privacy Regulation

<b>% end-of-term-examination:</b>	60
<b>% of continuous assessment (assignments, laboratory, practicals...):</b>	40

