



COMILLAS

UNIVERSIDAD PONTIFICIA

ICAI

ICADE

CIHS

Syllabus
2026 - 2027

GENERAL INFORMATION

Data of the subject	
Subject name	Security and Telecommunications Legislation
Subject code	DTC-GITT-413
Mainprogram	Bachelor's Degree in Engineering in Telecommunication Technologies
Involved programs	Grado en Ingeniería en Tecnologías de Telecomunicación [Fourth year] Grado en Ingeniería en Tecnologías de Telecom. y Grado en Análisis de Negocios/Business Analytics [Fourth year] Grado en Ing. en Tecnologías de Telecom. y Grado en Análisis de Negocios/Bachelor in Busi. Analytics [Fourth year]
Level	Reglada Grado Europeo
Quarter	Semestral
Credits	7,5 ECTS
Type	Obligatoria (Grado)
Department	Department of Telematics and Computer Scienices

Teacher Information	
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DESCRIPTION OF THE SUBJECT

Contextualization of the subject
Prerequisites
Basic knowledge of networks, web services and http protocol.



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Course contents

Contents

1 TELECOMMUNICATIONS POLICIES AND REGULATIONS IN THE EU

- Structure and governance of the EU (European Union). EU regulations.

2 TELECOMMUNICATIONS REGULATIONS IN SPAIN

- Telecommunications Management Act (Ley de Ordenación de las Telecomunicaciones - LOT).
- Telecommunications liberalization process.
- Royal Decree-Law 6/1996 and Telecommunications Liberalization Act (Ley de Liberalización de Telecomunicaciones - LLT) 2/1997.
- Regulatory evolution: General Telecommunications Act (Ley General de Telecomunicaciones - LGT) 11/1998, 32/2003, 9/2014.
- Current legislation: European Electronic Communications Code (EECC) and LGT 11/2022.
- Technical regulations for telecommunications infrastructures and services.

3 INTRODUCTION TO SECURITY

- Introduction and Basic Concepts.
- Risk analysis.

4 CRYPTOGRAPHY

- Symmetric and public-key cryptography.
- Irreversible encryption, Hash functions, and Randomness.
- Digital signature algorithms.

5 SECURE NETWORK ARCHITECTURE

- Traffic Segregation. Virtual Private Networks (VPNs).
- Tunnels and Firewalls.
- Secure Protocols.
- Remote Access.
- Public Key Infrastructures (PKI).
- Viruses and Antivirus Systems.

6 SECURITY MANAGEMENT

- Monitoring, IDS/IPS Systems, and Anomaly Detection.
- Security Management Standards.
- Security Dashboards, Metrics.

7 SECURITY REGULATIONS AND COMPLIANCE

- Regulation, SOX, ISO 27xxx.
- Personal data protection regulations: GDPR and LOPD-GDD.
- Electronic Signatures: eIDAS and eIDAS 2 Regulations.
- Cybersecurity: general and sector-specific regulations. NIS Directive/Regulations.

8 SECURITY COMPLIANCE

- Certification systems.
- Audit and Control.



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9 DIGITAL SERVICES, DIGITAL MARKETS, AND AI REGULATIONS

- Information Society and Electronic Commerce Services Act (LSSI).
- Digital Services Act (DSA) and Digital Markets Act (DMA).
- European Artificial Intelligence Act 2024 (EU AI Act).

LABS / PRACTICAL SESSIONS

Lab 1 - Minimum Security Requirements

- Strong passwords, 2FA, disk encryption.
- Backup and restore techniques.

Lab 2 - Password Security

- Password cracking. Finding compromised passwords.
- Password recovery tools for web browsers.

Lab 3 - Encryption Techniques

- Symmetric encryption.
- Asymmetric encryption.
- Electronic signature.
- Basic attacks.

Lab 4 - Secure Communications 1

- HTTPS, certificates, Man-in-the-Middle (MITM) attacks.

Lab 5 - Secure Communications 2

- HTTPS stripping attacks with SSLstrip.
- Attacks on Wi-Fi networks.

Lab 6 - Web Traffic Analysis

- Burp Suite, Fiddler. POST and GET forms.
- Web Scraping.
- Query string parameter tampering/modification.

Lab 7 - SQL Injection

- sqlmap.
- Database exploitation/attacks.

Lab 8 - AI-Powered Attacks

- Generating phishing emails/messages.
- Creating deepfakes.

EVALUATION AND CRITERIA

The use of AI to produce full assignments or substantial parts thereof, without proper citation of the source or tool used, or without explicit permission in the assignment instructions, will be considered plagiarism and therefore subject to the



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University's General Regulations.

Evaluation activities	Evaluation criteria	Weight
Final Exam. Security (50%), Legislation (10%)	General knowledge acquired during the course.	60
Performance during Lab sessions and Lab reports (10%) Quiz about Lab sessions, during the final exam (5%)	Lab reports	15
Project about Legislation (15%) Tests of exercises during the course (5% security, 5% legislation)	Project report and oral presentation. Tests and exercises in class.	25

Grading

70% of the final grade comes from security.

30% of the final grade comes from Legislation and Regulation.

Students may obtain a minimum grade of 4 on each part of this subject.

In case of retake exam, the criteria is the same. The grade of the retake exam will replace the grade of the final exam.

BIBLIOGRAPHY AND RESOURCES

In compliance with current regulations on the **protection of personal data**, we would like to inform you that you may consult the aspects related to privacy and data that you have accepted on your registration form by entering this website and clicking on "download"

<https://servicios.upcomillas.es/sedelectronica/inicio.aspx?csv=02E4557CAA66F4A81663AD10CED66792>