

Course guide

230821 - ECOTEL - Telecommunications Ecosystem Today: Networks, Services and Business

Last modified: 18/05/2026

Unit in charge:	Barcelona School of Telecommunications Engineering	
Teaching unit:	739 - TSC - Department of Signal Theory and Communications.	
Degree:	BACHELOR'S DEGREE IN TELECOMMUNICATIONS TECHNOLOGIES AND SERVICES ENGINEERING (Syllabus 2015). (Optional subject).	
Academic year: 2026	ECTS Credits: 6.0	Languages: Catalan

LECTURER

Coordinating lecturer:	JOSE ORIOL SALLENT ROIG
Others:	Primer quadrimestre: JOSE ORIOL SALLENT ROIG - 10

PRIOR SKILLS

N/A

REQUIREMENTS

N/A

TEACHING METHODOLOGY

The course will be developed using an iterative approach, with a very active role for the student. The professor will provide an initial framework, with a general overview of the telecommunications ecosystem. Once the student acquires this initial broad perspective, the professor will provide guidelines that allow the student to delve deeper into the various aspects of the course collaboratively. Student contributions will be discussed in class and refined iteratively.

LEARNING OBJECTIVES OF THE SUBJECT

The evolution of telecommunications in recent decades has been rapid, profound, and transformative, driven by numerous technological advances, digitization, and globalization. The world of telecommunications when ETSETB was founded more than 50 years ago bears little resemblance to today. As an example of the complexity of the resulting environment, it is estimated that by 2025 there may be some 150,000 telecommunications companies worldwide, compared to approximately 1,500 in 1990—a 100-fold increase.

In this context, the course "TELECOMMUNICATIONS ECOSYSTEM TODAY: NETWORKS, SERVICES, AND BUSINESS" was created because it was considered essential that GRETST students have the opportunity to acquire a comprehensive overview of the current telecommunications ecosystem before entering professional practice or pursuing master's studies.

The main objective is for students to acquire a comprehensive and practical understanding of the current telecommunications ecosystem, including the systems, networks, stakeholders, regulations, and business models that comprise it, and their relationship to the economy and society.

Upon completion of the course, students will be able to:

- Understand the different telecommunications systems and networks (fixed, mobile, satellite, etc.), from both a high-level and a technical perspective (architectures, technical functionalities, etc.).
- Understand the regulatory, normative, and political aspects that affect the design and operation of telecommunications.
- Identify the main stakeholders in the ecosystem, including regulatory bodies, operators, providers, and manufacturers. Based on this understanding, students will gain a comprehensive overview of the current "who's who" of the telecommunications ecosystem, including the leading companies in the various sectors.
- Understand business models and strategies in the telecommunications sector.
- Identify emerging technological and commercial trends and their impact on society and the economy. This course is NOT a "history of telecommunications" course, but rather aims to provide a perspective on telecommunications TODAY. However, the current ecosystem cannot be understood without knowing many aspects of its historical evolution, so this evolution will be frequently referenced throughout the course.

STUDY LOAD

Type	Hours	Percentage
Self study	98,0	65.33
Hours large group	52,0	34.67

Total learning time: 150 h

CONTENTS

Communications Systems and Transmission Media

Description:

Communications Systems and Transmission Media

Specific objectives:

Communications Systems and Transmission Media

Related activities:

Communications Systems and Transmission Media

Full-or-part-time: 3h

Theory classes: 3h



Communications Networks, Players, and Taxonomies

Description:

Communications Networks, Players, and Taxonomies

Specific objectives:

Communications Networks, Players, and Taxonomies

Related activities:

Communications Networks, Players, and Taxonomies

Full-or-part-time: 7h

Theory classes: 7h

Mobile Communications Networks

Description:

Mobile Communications Networks

Specific objectives:

Mobile Communications Networks

Related activities:

Mobile Communications Networks

Full-or-part-time: 9h

Theory classes: 9h

Automation and Artificial Intelligence in Mobile Communications Networks

Description:

Automation and Artificial Intelligence in Mobile Communications Networks

Specific objectives:

Automation and Artificial Intelligence in Mobile Communications Networks

Related activities:

Automation and Artificial Intelligence in Mobile Communications Networks

Full-or-part-time: 8h

Theory classes: 8h

Satellite Communications Networks

Description:

Satellite Communications Networks

Specific objectives:

Satellite Communications Networks

Related activities:

Satellite Communications Networks

Full-or-part-time: 3h

Theory classes: 3h



Mobile Communications Networks with NTN Access

Description:

Mobile Communications Networks with NTN Access

Specific objectives:

Mobile Communications Networks with NTN Access

Related activities:

Mobile Communications Networks with NTN Access

Full-or-part-time: 3h

Theory classes: 3h

PPDR (Public Protection and Disaster Relief) Communications

Description:

PPDR (Public Protection and Disaster Relief) Communications

Specific objectives:

PPDR (Public Protection and Disaster Relief) Communications

Related activities:

PPDR (Public Protection and Disaster Relief) Communications

Full-or-part-time: 3h

Theory classes: 3h

Transportation Communications Systems: Rail, Aviation, Maritime

Description:

Transportation Communications Systems: Rail, Aviation, Maritime

Specific objectives:

Transportation Communications Systems: Rail, Aviation, Maritime

Related activities:

Transportation Communications Systems: Rail, Aviation, Maritime

Full-or-part-time: 6h

Theory classes: 6h

Vehicular Communications

Description:

Vehicular Communications

Specific objectives:

Vehicular Communications

Related activities:

Vehicular Communications

Full-or-part-time: 3h

Theory classes: 3h



Military Communications

Description:

Military Communications

Specific objectives:

Military Communications

Related activities:

Military Communications

Full-or-part-time: 2h

Theory classes: 2h

Amateur Radio

Description:

Amateur Radio

Specific objectives:

Amateur Radio

Related activities:

Amateur Radio

Full-or-part-time: 1h

Theory classes: 1h

Notes on Tomorrow's ECOTEL

Description:

Notes on Tomorrow's ECOTEL

Specific objectives:

Notes on Tomorrow's ECOTEL

Related activities:

Notes on Tomorrow's ECOTEL

Full-or-part-time: 4h

Theory classes: 4h

GRADING SYSTEM

The assessment will be based on the student's contributions to the various aspects of the course. These contributions will be presented in PowerPoint slides. The grade can be improved with an optional oral exam.

EXAMINATION RULES.

N/A