

## Course guide

### 230820 - ECE - Ethics in Science and Engineering

Last modified: 30/05/2023

**Unit in charge:** Barcelona School of Telecommunications Engineering  
**Teaching unit:** 710 - EEL - Department of Electronic Engineering.

**Degree:** BACHELOR'S DEGREE IN MATHEMATICS (Syllabus 2009). (Optional subject).  
BACHELOR'S DEGREE IN INFORMATICS ENGINEERING (Syllabus 2010). (Optional subject).  
BACHELOR'S DEGREE IN ENGINEERING PHYSICS (Syllabus 2011). (Optional subject).  
BACHELOR'S DEGREE IN TELECOMMUNICATIONS TECHNOLOGIES AND SERVICES ENGINEERING (Syllabus 2015). (Optional subject).  
BACHELOR'S DEGREE IN DATA SCIENCE AND ENGINEERING (Syllabus 2017). (Optional subject).  
BACHELOR'S DEGREE IN ELECTRONIC ENGINEERING AND TELECOMMUNICATION (Syllabus 2018). (Optional subject).

**Academic year:** 2023    **ECTS Credits:** 6.0    **Languages:** Catalan

#### LECTURER

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**Coordinating lecturer:** Consultar aquí / See here:  
<https://telecos.upc.edu/ca/estudis/curs-actual/professorat-responsables-coordinadors/responsables-assignatura>

**Others:** Consultar aquí / See here:  
<https://telecos.upc.edu/ca/estudis/curs-actual/professorat-responsables-coordinadors/professorat-assignat-idioma>

#### TEACHING METHODOLOGY

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During the development of the course the following teaching methodologies will be used:

Master class or lecture (EXP): knowledge presentation by the teaching staff through master classes or by external persons through invited lectures.

Case studies (RP): collective resolution of exercises, debates and group dynamics, with the teacher and other students in the classroom; presentation in the classroom of an activity carried out individually or in small groups.

Theoretical-practical directed work (TD): realization in the classroom of an activity or exercise of a theoretical or practical nature, individually or in small groups, with the advice of the teacher.

Project, activity or work of reduced scope (PR): learning based on the realization in group of a work of exposition in class around one of the themes of the course.

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#### LEARNING OBJECTIVES OF THE SUBJECT

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Reflect and evaluate conceptual frameworks, theories and practical problems in relation to ethics and philosophy of technology. Appropriately, critically and reflectively, apply forms of rational deliberation on the implications of technology in society. Apply deliberative methods and tools regarding professional and organizational responsibility from an ethical perspective. Know the cultural, environmental, social, political and economic impacts of the application of technologies as well as the effects of the convergence of technologies.

At the end of the course, the student:

He/she knows and understands the characteristics of the ethical and social impacts of technology, while being able to carry out grounded and argued critical analyzes of these impacts.



## STUDY LOAD

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

**Total learning time:** 150 h

## CONTENTS

### 1. Introduction

**Description:**

- 1.1 The evolutionary perspective: the human as a moral being
- 1.2 Ethics and morals
- 1.3 The principles of bioethics
- 1.4 The four ethics: individual, civic, professional and organizational

**Full-or-part-time:** 30h

Theory classes: 12h

Self study : 18h

### 2. Technique, technology and technoscience

**Description:**

- 2.1 The evolutionary perspective: the human as a technical being
- 2.2 Fundamental conceptual definitions:
  - 2.2.1 Technique
  - 2.2.2 Technology
  - 2.2.3 Technoscience
- 2.3 Is technology neutral? The question of the autonomy of the technique

**Full-or-part-time:** 30h

Theory classes: 10h

Self study : 20h

### 3. Ethical impacts of technoscience

**Description:**

- 3.1 Between two extremes: technophobia vs technoenthusiasm. In search of the midpoint.
- 3.2 The modification of our self-conception: posthumanism, transhumanism and cyborgization
- 3.4 Technologies and power: economics, politics and social control
- 3.5 Utopia and dystopia, a matter of choice?

**Full-or-part-time:** 35h

Theory classes: 15h

Self study : 20h

## GRADING SYSTEM

Class participation: 25 %.

Development of a topic and presentation: 75 %.