

## Engineering Ethics

Code: 103804  
ECTS Credits: 3

**2025/2026**

Degree	Type	Year
Computer Engineering	OB	3

### Contact

Name: Antonio Ricardo Manresa Robledo

Email: antonio.manresa@uab.cat

### Teachers

Milton Maldonado Estrella

Montserrat Serra Vizern

### Teaching groups languages

You can view this information at the [end](#) of this document.

### Prerequisites

There are none.

### Objectives and Contextualisation

In the subject, the guidelines are offered to discover and manage the social implications and the polyvalence of technology. Initially, the basic concepts related to morality, ethics and responsibility are introduced. It shows how professional practice expresses the importance of analysis in decision making in order to recognize complex situations and assess the consequences of possible alternatives. It presents the fundamental ethical frameworks, the deontological codes associated with the professions and the global commitments for a fair, peaceful and sustainable human development.

### Competences

- Acquire thinking habits.
- Act ethically and professionally.
- Analyse and evaluate the social and environmental impact of technical solutions and understand the ethical and professional responsibility of the activity of an IT engineer.

- Capacity to design, develop, select and evaluate computer applications and systems, ensuring reliability, security and quality, in accordance with ethical principles, and applicable standards and legislation.
- Communication.

## **Learning Outcomes**

1. Assume and respect the role of the various team members , as well as different levels of dependence on the team.
2. Be familiar with the fundamental ethical frameworks and deontological codes.
3. Be sensitive to implicit or underlying ethical conflicts.
4. Communicate efficiently, orally or in writing, knowledge, results and skills, both in the professional environment and before non-expert audiences.
5. Contribute to the welfare of society and to sustainable development.
6. Detect and analyse ethical alternatives in real situations.
7. Develop a mode of thought and critical reasoning.
8. Discover and filter the social implications and polyvalence of technologies.
9. Distinguish the basic concepts related to morality and ethics.
10. Identify the inherent values of technological designs and environments.
11. Make rational decisions when faced with ethical dilemmas.
12. Respecting the diversity and plurality of ideas, people and situations.

## **Content**

The subject introduces what are the main points of view about technology and what responsibility professionals have regarding the exercise of their profession. The main ethical frameworks that can help us in the analysis of situations where ethical conflicts appear are presented. It describes how ethics is focused on technical studies and how deontological codes have been established in different professions related to engineering. Cases of conflicting areas are studied to identify the consequences of possible courses of action. The topics are structured as follows:

## **1 FUNDAMENTAL ELEMENTS OF ETHICS**

### **1.1 Importance of Ethics and critical thinking in the professional world**

### **1.2 Some studies that support the importance of Ethics and critical thinking.**

### **1.3 Concept, origins and elements that make it up**

### **1.4 Foundations and relations with other disciplines**

### **1.5 Moral relativism**

### **1.6 Ethical theories,**

### **1.7 Areas of ethics. Applied ethics**

## **2 ETHICS APPLIED TO SCIENCE AND TECHNOLOGY**

## **2.1 Exploring Neutrality in Science and Technology**

### **2.2 Instrumental rationality**

### **2.3 Technology Assessment**

### **2.4 Moral responsibility in science and technology**

### **2.5 Duties derived from science and technology**

## **3 PROFESSIONAL ETHICS**

### **3.1 Features and dimensions of the professions. Professional liability.**

### **3.2 Codes of ethics and professional ethics**

### **3.3 Conflicts between standards**

### **3.4 Conflicts of interest**

### **3.5 Ethics in research**

## **4 GLOBAL DIMENSION OF DEVELOPMENT**

### **4.1 Ecological and social crisis**

### **4.2 Sustainable development**

### **4.3 Globalization**

### **4.4 Economy and sustainability**

### **4.5 2030 Agenda: opportunities and limits**

## **Activities and Methodology**

Title	Hours	ECTS	Learning Outcomes
Type: Directed			
Lectures	13	0.52	1, 5, 8, 9, 2, 12
Seminars and practices	12	0.48	4, 5, 7, 6, 10, 11, 3

Type: Autonomous

Personal work	30	1.2	6, 9, 10, 3
Study for the final exam	6	0.24	9, 2

The subject consists of a theoretical part, a practical part, and a personal work part of the student.

A total of 25 face-to-face hours are taught for the student, which are distributed as shown in the table of training activities. The total dedication of the student is 75 hours, therefore, there is a non-face-to-face dedication of 50 hours.

## TRAINING ACTIVITIES

### Theory sessions

Lectures where the group develops the basic contents that the student must need to introduce himself to the topics that make up the program. At the same time, possible ways to complete or deepen the information received in these sessions may be indicated. During these classes, group learning activities can be carried out in which the participation of all students will be requested.

### Practice sessions

Team activities where cases of conflicts or ethical challenges are studied using the concepts seen in theory. Based on the dialogue in the group, the different courses of action that the case allows and the foreseeable consequences are proposed. The teams prepare a presentation in which the case is presented to the rest of the students, the actions considered and the conclusions reached are described. At the beginning of the presentation, a written report is given summarizing the presentation.

### Seminar sessions/debates/problems

In these sessions, an academic paper or a topic that everyone has had the opportunity to read and analyze beforehand is reviewed together. The objective is to induce active participation through the proposal, criticism, or reasoned defense, of options to be followed or measures to be adopted. Dialogue groups may be formed that will have to present the analyzed text from an ethical perspective.

Annotation: Within the schedule set by the centre or degree programme, 15 minutes of one class will be reserved for students to evaluate their lecturers and their courses or modules through questionnaires.

## Assessment

### Continous Assessment Activities

Title	Weighting	Hours	ECTS	Learning Outcomes
Case of study presentation	25%	6	0.24	8, 6, 9, 3
Final exam	50%	2	0.08	1, 6, 9, 2, 11, 12
Test on reading	25%	6	0.24	4, 5, 7, 6, 10, 3

Both the knowledge acquired in relation to the objectives set in the subject and the degree to which the skills and competencies that were intended to be developed have been achieved will be taken into account.

### **a) Programmed evaluation process and activities**

The subject consists of the following assessment activities:

- Activity A, Presentation of a practical case, is worth 25% of the final grade.

This activity will involve an oral presentation and the presentation of a report. You will have to make groups of between 3 and 6 people during the first week of the course. The limit of students per group will depend on the number of students enrolled. It is very important to form the groups during the first week. In the third week everyone will have to deliver the report and the presentations will begin. The details of the assigned topics will be given on the first day of class and on the Virtual Campus.

- Activity B, Tests on readings, is worth 25% of the final grade.

During week 8, 9, 10 or 11 if the calendar allows it we will do a test, on a reading of an article that talks about Ethics. The reading will be specified on the Virtual Campus.

- Activity C, Final synthesis test, is worth 50% of the final grade.

It is an exam that will cover the four topics of the course and the practices presented by the students.

- Activity D, Class participation, is worth 10% of the final grade. To qualify for this grade, you cannot miss more than 20% of all class hours. Receipts for illness or other personal reasons do not exempt from this requirement.

Active participation in debates, attendance, etc. will be valued. If you get a 0 you can perfectly get a 10 in the subject, but it can help to pass the subject or get Honors.

In order to pass the subject, through continuous assessment, it will be necessary to obtain a grade equal to or greater than 50% in activities A and B. And a grade equal to or greater than 40% in activity C. The grade of the transcript will be the lowest of all. The grade of class participation can be added beforehand to achieve these requirements.

Activities A and B are non-recoverable, so failing them with a grade of less than 50% means not passing the subject.

### **b) Programming of evaluation activities**

The calendar of the evaluation activities will be given on the first day of the subject, whenever possible and will be made public through the Virtual Campus. The following calendar is planned:

- Activity A:

Week 1: Create groups.

Week 2-3: Group work; Make a report.

Week 4 to 16: Presentations of each group (1 day) ; Go to classmates' presentations (every day)

- Activity B:

Week 8,9,10 or 11: Control.

- Activity C:

At the end of the course during the evaluation calendar.

At the end of the evaluations, during the retake calendar.

**c) Recovery process**

The student has the right to a retake of the final exam, if he/she has not passed the subject in the continuous assessment. Only activity C, the Final Synthesis Test, will be recovered. Everything is assessed with the same percentages as continuous assessment and the same criteria are required to pass the subject. The grade in the academic record will be a maximum of 7.

**d) Procedure for reviewing grades**

For each assessment activity, a place, date and time of review will be indicated in which students will be able to review the activity with the teaching staff. In this context, complaints may be made about the grade of the activity, which will be evaluated by the teaching staff responsible for the subject. If the student does not attend this review, this activity will not be reviewed later

**e) Grades**

- Honors. As for the honors, the UAB regulations will be followed. Specifically:

"6. The mention of honors may be awarded to the student who has a grade equal to or greater than 9.0. The number of honours awarded may not exceed 5% of people enrolled in a subject or module in the corresponding academic period, except if the total number of people enrolled is less than 20. In this case, only one honours may be awarded. An additional honours mark may be awarded by rounding up the fraction resulting from the application of 5% of students enrolled in the subject." Apart from the grade obtained, regular attendance at the sessions will be especially valued, as well as the active and enriching participation carried out in the activities.

- A student will be considered not presented if he or she has not submitted either activity A, B or C.

**f) Consequences of irregularities committed by students: copying, plagiarism, ...**

Without prejudice to other disciplinary measures that may be deemed appropriate, and in accordance with the regulations

current academic record, irregularities committed by a student that may lead to a variation in the grade will be graded with a zero. For example, plagiarism, cheating, presenting a group assignment not entirely done by the members of the group (applied to all members, not just those who have not worked), unauthorized use of AI (e.g., Copilot, ChatGPT or equivalent), copying or allowing an assessment activity to be copied, etc., will imply failing the subject with a zero. In this case, the subject will not be recoverable.

**g) Evaluation of repeating students**

Students with second enrolment will be assessed in the same way as students who enrol for the first time.

**h) Examination-based assessment**

This subject does not provide for the single assessment system.

**i) Use of AI**

For this subject, the use of Artificial Intelligence (AI) technologies is allowed exclusively in support tasks, such as bibliographic or information search, text correction or translations and for the graphic and audiovisual part of the presentations. The student will have to clearly identify which parts have been generated with this technology, specify the tools used and include a critical reflection on how they have influenced the process and the final result of the activity. Lack of transparency in the use of AI in this assessable activity will be considered a lack of academic honesty and may result in a partial or total penalty in the grade of the activity, or greater penalties in cases of seriousness.

## **Bibliography**

Bilbao, Galo; Fuertes, Javier y Guibert, José Mª (2006). Ética para ingenieros. Desclée De Brouwer.

Bynum, Terrell Ward and Rogerson, Simon (eds.) (2004). Computer Ethics and Professional Responsibility. Blackwell Publishing.

Harris, Charles E.; Pritchard, Michael S.; Rabins, Michael J.; James, Ray and Englehardt, Elaine (2018). Engineering Ethics: Concepts & Cases. Cengage Learning.

Ibarra, Andón y Olivé, León (eds.) (2003). Cuestiones éticas en ciencia y tecnología en el siglo XXI. Biblioteca Nueva (access online, UAB).

<https://cutt.ly/qnTRvr3>

Pieper, Annemarie (1991). Ética y moral. Una introducción a la filosofía práctica. Crítica.

Xercavins, Josep; Cayuela, Diana; Cervantes, Gemma i Sabater Assumpta (2005).

Desarrollo sostenible. Edicions UPC (access online UPCommons).

<https://upcommons.upc.edu/handle/2099.3/36752>

## Software

No required.

## Groups and Languages

Please note that this information is provisional until 30 November 2025. You can check it through this [link](#). To consult the language you will need to enter the CODE of the subject.

Name	Group	Language	Semester	Turn
(PAUL) Classroom practices	411	Catalan	second semester	morning-mixed
(PAUL) Classroom practices	412	Catalan	second semester	morning-mixed
(PAUL) Classroom practices	415	Catalan	second semester	morning-mixed
(PAUL) Classroom practices	416	Catalan	second semester	morning-mixed
(PAUL) Classroom practices	417	Catalan	second semester	afternoon
(PAUL) Classroom practices	418	Catalan	second semester	afternoon
(TE) Theory	410	Catalan	second semester	morning-mixed
(TE) Theory	415	Catalan	second semester	morning-mixed
(TE) Theory	417	Catalan	second semester	afternoon