Course guide
2400245 - 240MEI97 - Technology, Ethics and Society

Last modified: 01/06/2026

Unit in charge: Barcelona School of Industrial Engineering
Teaching unit: 756 - THATC - Department of History and Theory of Architecture and Communication Techniques.

Degree: MASTER'S DEGREE IN INDUSTRIAL ENGINEERING (Syllabus 2025). (Optional subject).

Academic year: 2026 **ECTS Credits:** 5.0 **Languages:** English

LECTURER

Coordinating lecturer: Marta Aguilar Pérez

Others: Aguilar Perez, Marta

PRIOR SKILLS

The course will be fully taght in English. As it is within a Master's programme, the requirement for all UPC is B.2.2 or above.

TEACHING METHODOLOGY

A combination of the usual lecture modality and discussion based on scholarly readings and materials by renowned authors. The Oxford debate, debates in small groups and whole-class debates and groupwork will be used to facilitate exchange of opinions, participation and promote reflection. Students will have to weekly read at home if they want to be prepared to participate in debates and write their individual written assignments at the end of every session.

LEARNING OBJECTIVES OF THE SUBJECT

The course seeks to understand technology as a powerful human activity broadly enmeshed with other human affair while aiming to raise engineering students' awareness about their role, ethical choices and deontology code. It follows Science Technology and Society (STS) discipline. While examining developments in the recent history of technology, particularly Artificial Intelligence, the primary emphasis of the course is upon the role of technology in shaping, and being shaped by, our society. This course takes the approach that engineering is not merely about design and implementation. Because engineering aims at goods for the individual and for society, engineering endeavours need to cater for an understanding of the welfare and progress that engineering is expected to bring to the individual and society.
Some of the questions that are raised are as follows:
• What are technology's connotations in today's world? What are the ambivalences in the relationship between "progress" and technological development in the Western world?
• How does technology relate to other broad concepts defining our society, such as culture, nature, democracy or politics?
• How can the humanities contribute to an ethical AI? To what extent do ethic theories from philosophy and dystopian literature help enhance critical thinking and ethic awareness within the engineering profession?

STUDY LOAD

Type	Hours	Percentage
Self study	80,0	64.00
Hours large group	45,0	36.00

Total learning time: 125 h

CONTENTS

MODULE 1. Technology, ethics and society

Description:
What is technology? What is technology ethics? Society and culture in ethic dilemmas. Engineering deontology.

Full-or-part-time: 10h
Theory classes: 6h 40m
Practical classes: 3h 20m

MODULE 2. Main theories in Science, Technology and Society (STS)

Description:
Techno-optimistic and techno-pessimistic views. Two maintream theories in Science, Technology and Society (STS). The notion of progress (economic, social, technological progress).

Full-or-part-time: 10h
Theory classes: 5h
Practical classes: 5h

MODULE 3. Ethics in the digital era

Description:
Ethics in the digital era: Artificial Intelligence and main ethic theories used in technology.

Full-or-part-time: 12h
Theory classes: 5h 20m
Practical classes: 6h 40m

MODULE 4.AI, the right to privacy, freedom of speech and democracy

Description:
AI, the right to privacy, freedom of speech and democracy. How do we prevent learning algorithms from acquiring morally repugnant biases? Are AI systems moral agents? Can they be? If they are, how do we hold them responsible? Can they suffer ethical harms? What counts as such? How can we best align our own aims with that of autonomous AI systems?

Full-or-part-time: 14h
Theory classes: 6h 40m
Practical classes: 7h 20m

MODULE 5.Digital technologies and human relationships.

Description:
Digital technologies and human relationships. Has social media made us better? How best to embed AI systems in our social relations—to what ends?

Full-or-part-time: 14h
Theory classes: 6h 40m
Practical classes: 7h 20m

GRADING SYSTEM

The contents of the course cannot by acquired or understood without previous reading, regular attendance and active participation, so students are expected to attend all lessons showing willingness to debate, discuss, and engage in individual reflection.
Final exam: 35%
Attendance and Class activities: 65%

EXAMINATION RULES.

Plagiarism will be reduced to a zero mark.

BIBLIOGRAPHY

Basic:
- Nyholm, Sven. This is technology ethics : an introduction. Hoboken: Wiley Blackwell, 2023. ISBN 9781119755579.
- Ginés, Montserrat. The meaning of technology : selected readings from american sources [on line]. Barcelona: Edicions UPC, 2003 [Consultation: 25/04/2025]. Available on: https://upcommons.upc.edu/handle/2099.3/36674. ISBN 8483017334.
- Harris, Charles E. Jr [et al.]. Engineering ethics : concepts and cases. 6a ed. Boston: Cengage, 2018. ISBN 9781337554503.

RESOURCES

Hyperlink:
- MATERIALS BASATS EN LLIBRES. Materials by Carme Torras and MIT Press. The Vestigial Heart.