

Course guide

240287 - 240EN44 - Energy, Technology and Society

Last modified: 30/06/2023

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 ENERGY ENGINEERING (Syllabus 2022). (Optional subject).

Academic year: 2023 **ECTS Credits:** 5.0 **Languages:** English

LECTURER

Coordinating lecturer: Aguilar-Perez, Marta

Others: Aguilar-Perez, Marta

PRIOR SKILLS

Deploy some basic knowledge about energy engineering and have at least an English proficiency level of B.2.2 (Upper Intermediate)

TEACHING METHODOLOGY

- Lectures: interactive and participatory lectures
- Discussions and Debates: open and guided discussions; the Oxford debate and team or class debates
- Groupwork and individual work
- Role-play

LEARNING OBJECTIVES OF THE SUBJECT

Energy issues have transformed from solely technical, engineering issues to complex socio-technical phenomena on the border between technology and society. political issues relating to future technological solutions and energy policies cannot be limited to technical expertise alone but must take into account the social context. Conventional ways of teaching energy, still dominated by its technological facet, insufficiently take into account the broad social dimension of energy, which tends to be marginalized or completely absent—with the only exception of economy. Realizing the embedding of contemporary transformations and controversies related to energy in social issues, this course integrates technology and the humanities by drawing on the Science, Technology and Society (STS) perspective and aims to cover various topics associated with social and ethic aspects of energy for educating Master and PhD students at a technical higher education institution. It broadly seeks to

- 1- instill and foster critical reflection on energy in the contemporary world, especially in the context of values embedded in political decisions and historical facts, and its social consequences.
- 2- make this perspective more accessible to future engineers. Energy is a resource of strategic importance and hence plays a significant role in today's social, political and economic world as reflected in current debates and conflicts like global climate change, diminishing conventional resources or wars.

CONTENTS

TOPIC 1. Science and Technology Studies. Technology Ethics. Environmentalism and energy awareness from the Science, Technology and Society (STS) perspective.

Description:

STS studies and its two mainstream theories in science, technology and society (Technological determinism, and Social constructionism)

Defining Technology ethics. Individual and collective ethics.

Introduction to energy awareness.

Related activities:

Interactive lecture, pre-reading of texts or interview watching; case studies followed by discussions or debates. Written individual report at the end.

Full-or-part-time: 15h

Practical classes: 15h

TOPIC 2. Philosophy and Ethics of Energy Development. Our attitudes concerning energy technologies

Description:

Natural sciences, technologies and modern societies. The idea of progress

The conflict between industrial past and environmental values

Energy and ethics: ethics of responsibility, ethics of care, deontology, virtue ethics.

Full-or-part-time: 15h

Practical classes: 15h

TOPIC 3. Technology Assessment. An approach for organizing societal discourse on innovative energy technologies

Description:

History and functions of technology assessment

Dimensions of technology assessment

Social Impact of Energy Technologies. Assessing Social Impacts through Social Life Cycle Assessment (SLCA)

Actors and methods of technology assessment.

The role of AI in addressing climate change.

Full-or-part-time: 15h

Practical classes: 15h

GRADING SYSTEM

Continuous assessment: active participation of students in class and submission of activities done in class and at home: 70%

Final exam: 30 %

Plagiarism will be penalised up to the 0 mark.

EXAMINATION RULES.

The exam will be in English, like everything in the course



BIBLIOGRAPHY

Basic:

- Bombaerts, G. [et al]. Energy justice across borders [on line]. Cham: Springer, 2020 [Consultation: 08/11/2023]. Available on: <https://link.springer.com/book/10.1007/978-3-030-24021-9>. ISBN 3030240215.

Complementary:

- Nyholm, Sven. This is technology ethics : an introduction. Hoboken, New Jersey: Wiley Blackwell, 2023. ISBN 9781119755579.
- Felt, Ulrike [et al.]. The Handbook of Science and Technology Studies. 4th ed. Massachusetts: The MIT Press, 2017. ISBN 9780262035682.

RESOURCES

Computer material:

- Integrating Social Sciences and Humanities into Teaching about Energy. TEACHENER EDUKIT. Resource

Other resources:

Materials uploaded to ATENEA