

## TEACHING MODULE

### SYLLABUS

#### 1. Name of the Teaching Module

Energy awareness. Being aware of the importance of energy (for our life).

#### 2. Brief description of the subject matter

This module aims to reflect on the need to address societal aspects (e.g. individual's motivations and behavioural changes, institutional practices), beyond technological ones, when raising energy awareness and implementing policies and projects. It will trigger discussions on values, motivations and barriers related to energy savings in our daily routines. It will also draw attention to the vital importance of SSH for addressing the socio-technical challenges related to secure, clean and efficient use of energy. The students will explore why and how SSH can help to address energy issues and will reflect on how cooperation between technical and SSH disciplines could be enhanced.

#### 3. Complete SSH problems description

When trying to implement energy policies or projects, the behavioural and social aspects are highly relevant. It is important to look beyond the technology proposed and into the wider socio-technical challenges and opportunities associated with motivating behavior change towards energy efficiency. Taking societal issues into account at an early stage of a project and in the policy-making process may facilitate the implementation of certain technologies or policies. It is of utmost importance that technology students are aware of the social aspects in the implementation of energy policies or projects and that they understand the terminology and concepts, so that they can formulate the right questions when addressing social issues in this context.

#### 4. Prerequisites and context

This module is addressed to students in Engineering Faculties which are following an Energy related Master Programme. Students do not need to have a strong technical background on engineering, but knowledge of technical matters will help. Students must have taken or be taking part in courses where energy projects are developed.

The module on Ethics and Philosophy of Energy Development is complementary to this one, by providing the theoretical and historical background. The module on Ethics and Philosophy is more focused on 'why' technologies can be a source of social impact but also of cultural identity, why there is a conflict between the industrial past and the current environmental values and why ethical questions and responsibility should be taken into account when designing energy strategies.

The present module takes a more practical approach focusing on how specific energy policies should address the complex interplay between what are typically seen as distinct "technical" and "social" dimensions and reflect on the contribution by social sciences to energy policies. For this, it is

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important to raise the students' awareness on the implications of current energy patterns of consumption.

## 5. Learning outcomes

### a. Knowledge

- Students will have knowledge about a series of social aspects deserving consideration as related to energy projects/policies.
- Students will understand the importance of energy awareness in the implementation of certain energy policies in order to change behaviour.

### b. Skills

- Students will be able to analyze a specific energy policy from the social and socio-technical perspective.
- Students will understand the complex interplay between technology-society-culture-environment and economy.

### c. Social competencies

- Sustainability and social commitment.
- Team working.
- Effective oral and written communication.

## 6. Form of classes

- Lecture, workshop, group work, role play, discussion.
- Two sessions (2x45 min) for up to 20 students.
- At least 70% direct student participation.

## 7. Teaching methods

- Concept problem presentation (powerpoint) with brainstorming, discussion and mind map.
- PlayDecide as fact-based group discussion around a specific case.
- Role play and debate.

## 8. Detailed classes plan

- Session 1. Introduction to energy awareness (2x45min)
  - i. Introductory presentation
  - ii. Energy consumption patterns (including an activity to fill in an impact self-assessment matrix and develop a joint mind map)
  - iii. Summary discussion, highlighting the importance of social sciences in policy-making on energy.

MATERIALS: presentation, matrix on energy impact self-assessment, videos.

- Session 2. Workshop and role play (4x45min)

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- i. Presentation of the scenario based on the Playdecide game on energy and sustainability in Canada.
- ii. Discussion on energy and sustainability in groups.
- iii. Role play simulating a town hall meeting on defending the agreed energy policy and raising energy awareness.
- iv. Summary discussion

MATERIALS: PlayDecide game instructions, cards, placemat.

## 9. TM assessment methods & criteria

A short assignment will be the method of assessment for this module in which the students are asked to write down the main arguments for and against the policy position proposed by the group and reasons why they chose a certain approach. Issues to be taken into account in this assignment include:

- Role of social sciences and humanities can help to shape and configure the chosen policy;
- Main aspects of an energy awareness campaign.

## 10. Literature and other materials

### 1. Energy and behaviour change

1.1. EEA Technical report. Achieving energy efficiency through behaviour change: what does it take? "European Environment Agency" 2013, No 5.

1.2. Dahlbom Bo, Heather Greer, Cees Egmond, Ruud Jonkers (eds.). 2009. Changing energy behaviour. Guidelines for Behavioural Change Programmes. Instituto para la Diversificación y Ahorro de la Energía (IDAE), Madrid. Supported by Intelligent Energy Europe.

1.3. OECD Policy highlights. 2017. Tackling Environmental Programs with the help of Behavioural Insights. Policy Highlights. Paris.

### 2. Social sciences and humanities in energy

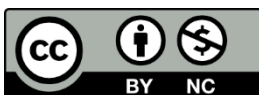
2.1. FET Advisory Group. 2016. The need to integrate the Social Sciences and Humanities within Science and Engineering in Horizon 2020 and beyond. FET (Future Emerging Technologies) Advisory Group

2.2. Fri W. Robert et al. 2011. Beyond Technology. Strengthening Energy Policy through Social Science. A report of the American Academy of Arts & Sciences Online:  
<https://www.amacad.org/sites/default/files/publication/downloads/alternativeEnergy.pdf>

2.3. Mourik Ruth et al. 2017. Energy efficiency and using less – a social sciences and humanities annotated bibliography. Cambridge: SHAPE ENERGY. <https://shapeenergy.eu/wp->

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2.4. Ryan E. Sarah, Chris Hebdon, Joanna Dafoe. Energy research and the contributions of the social sciences: a contemporary examination. "Energy Research & Social Science" 2014, (3), p. 186-197. DOI: 10.1016/j.erss.2014.07.012

2.5. Sovacool K. Benjamin. What are we doing here? Analysing fifteen years of energy scholarship and proposing a social science research agenda. "Energy Research & Social Science" 2014, (1) 1-29. DOI: 10.1016/j.erss.2014.02.003

2.6. Spreng Daniel. Transdisciplinary energy research – Reflecting the context. "Energy Research & Social Science" 2014, (1) 65-73. DOI: 10.1016/j.erss.2014.02.005

2.7. Steg Linda, Perlaviciute Goda, Ellen van der Werff. Understanding the human dimensions of a sustainable energy transition. "Frontiers in psychology" 2015 (17 June) 6:805. DOI: 10.3389/fpsyg.2015.00805

