

MGT-408

Technology policy and the energy transition

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Cursus	Sem.	Type
Energy Science and Technology	MA1, MA3	Opt.
Management, Technology and Entrepreneurship minor	H	Opt.
Managmt, tech et entr.	MA1, MA3	Opt.

Language of teaching	English
Credits	2
Session	Winter
Semester Exam	Fall During the semester
Workload	60h
Weeks	14
Hours	2 weekly
Courses	1.5 weekly
Number of positions	

Remark

Special schedule. See the MTE website: <http://cdm.epfl.ch/mte/study-plan>

Summary

This course involves the theoretical and empirical analysis of technology Policy as applied to the issue of energy transition. To address this so-called "Grand Challenge", the combination of market-based instruments with technology policy seems to be of critical importance.

Content

We present a general framework based on the notions of private and social returns of R&D and innovation and market failures. We examine then the various types of interventions by the State both in terms of environmental policy and technology policy as well as the different types of errors that can be done. We clarify the opposition between horizontal and vertical policy and use smart specialisation as an example. We finally apply all these concepts to the problems of climate change and energy transition

Keywords

technology policy, private and social returns of R&D, market failures, vertical and horizontal policy, smart specialisation, market-based instruments, climate change

Learning Prerequisites**Recommended courses**

Principles of Microeconomics (A. Mack)

Important concepts to start the course

Knowledge externalities

Market failures

Environmental externalities

Learning Outcomes

By the end of the course, the student must be able to:

- Understand and discuss the key concepts of environmental and knowledge externalities as the micro-foundations of the economics of environmental and technology policy.
- Understand and analyze the complex relationships between environmental policies and technology policies.
- Generate and organize information about specific cases.

Transversal skills

- Access and evaluate appropriate sources of information.
- Make an oral presentation.
- Plan and carry out activities in a way which makes optimal use of available time and other resources.

Teaching methods

Formal teaching, team work

Expected student activities

Preparation of oral presentation, writing of a document

Assessment methods

Continuous assessment combining:

25% individual work

75% final project

Resources

Bibliography

To be provided at the first session