UCLouvain

llsms2053

2025

Energy and Transition Perspectives

5.00 credits	30.0 h	Q2

Teacher(s)	Vingerhoets Pieter ;Willems Bert ;
Language :	English
Place of the course	Louvain-la-Neuve
Prerequisites	Courses in sustainability, environmental transition, macroeconomics, statistical analyses. Advanced courses in energy system analysis and energy economics, energy market analysis and regulation.
Main themes	Some of the topics treated in the course include: · Future demand effects; energy efficiency, electrical vehicles, infrastructure investments · Geopolitical analysis of energy sources and systems · Industrial structure and locational analysis · Technology and infrastructure development · Global, regional and national energy models for forecasting (CLIMATIC, PRIME, JEDI, et al.) · Forecasts of climate impact of energy system choices
Learning outcomes	**At the end of this learning unit, the student is able to :** The course takes a wholistic perspective on the energy in the society, economically, socially and environmentally. Looking at the energy policy objectives in terms of security of supply, environmental sustainability and economic affordability, the course critically examines the historic and current energy value chain. The course includes two additional perspectives: a geopolitical analysis of energy sources and technologies, and a supply chain perspective on industrial structure and locational development. **After the course, the students should be familiar with and able to :** · to run and interpret energy sector models for forecasting in terms of economic, social and environmental KPIs.. · to understand the interplay of geopolitics, market development and energy system development in Europe and internationally. · to model energy system impacts of existing and new technological innovations in consumption, storage and mobility. The course provides a strategic perspective of energy system management, across various vertical segments in the energy value chain.

Evaluation methods	**Grading Structure** · **Participation (30 percent)** Participation includes group work, student presentations, and active involvement in class activities. · Students are expected to attend company visits organized as part of the course and to actively engage when guest speakers are invited. · Failure to actively participate will result in a lower participation grade. · **The participation grade is final** and cannot be retaken. · **Exam (70 percent)** A written exam will take place at the end of the course. · A **minimum score of 10 out of 20** on the exam is required to pass the course. · If a resit is necessary, the **format may be adapted** , for example, the resit may be conducted as an oral exam. **Use of AI Tools** AI tools may be used for assignments and preparation unless explicitly stated otherwise for a specific task. If AI is used, students must clearly state this in their submission, briefly describing: 1. Which AI tool or tools were used 2. For what purpose they were used, such as drafting text, generating ideas, or running code 3. A short description of their own contribution, clarifying what was done by the student themselves versus the AI *Recording all prompts or outputs is not required, but students should keep a record of key steps if the instructor requests clarification.* **Responsibilities when using AI:** Students remain fully responsible for the quality and integrity of their work. They must: · Understand and verify all results, calculations, and arguments included in their submission · Be able to present and explain their work, including any AI-generated parts, during discussions or presentations · Ensure they have read and understood all references and source materials cited in their work · Check the correctness of all derivations, code, and factual claims · Avoid entering personal or confidential information into AI systems Failure to meet these responsibilities may negatively affect the assignment grade, even if AI use is properly disclosed. **Late Submission Policy** Late submissions of assignments will result in a grade deduction, with the exact penalty depending on how late the submission is. · Submissions that are several days late may not be accepted, unless prior arrangements have been made with the instructor. · Exceptions will only be considered in documented cases of illness or other serious circumstances. **Free Riding Policy** All group members are expected to contribute actively and fairly to group assignments. · Free riding will result in a full grade deduction on the assignment for the student concerned. · Instances of free riding should be reported in Moodle. · Groups are encouraged to keep a simple record of contributions such as meeting notes or task lists to clarify responsibilities if disagreements arise.
Teaching methods	Ex-cathedra lectures, lectures with active student participation (such as group work, computer simulations, and student presentations), and guest lectures if possible.
Content	**Some of the topics treated in the course include:** · Future demand effects; energy efficiency, electrical vehicles, infrastructure investments · Geopolitical analysis of energy sources and systems · Industrial structure and locational analysis · Technology and infrastructure development · Global, regional and national energy models for forecasting (CLIMATIC, PRIMES, JEDI, et al.) · Forecasts of climate impact of energy system choices Note: The content of the course might be adjusted based on the availability of guest speakers.

Other infos	The communication between the professor and the students takes place through the electronic platform Moodle. You should enroll in the course on Moodle to have access to the online documents such as course notes, slides and additional material that will be posted.
Faculty or entity in charge	CLSM

Programmes containing this learning unit (UE)

Program title	Acronym	Credits	Prerequisite	Learning outcomes
Master [120] : Business Engineering	INGE2M	5		
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