





5.00 credits

30.0 h + 15.0 h

Q2

Teacher(s)	Contino Francesco ;Dias Véronique (compensates Contino Francesco) ;Jeanmart Hervé ;Rixhon Xavier (compensates Jeanmart Hervé) ;
Language :	English > French-friendly
Place of the course	Louvain-la-Neuve
Main themes	<ul style="list-style-type: none"> • World energy outlook • Energy systems • Energy technologies • Environmental, economic, societal, ethical aspects of energy
Learning outcomes	<p>At the end of this learning unit, the student is able to :</p> <p>Contribution of the course to the program objectives (N°)</p> <ul style="list-style-type: none"> • AA1.1, AA1.3 • AA3.1, AA3.3 • AA5.2, AA5.3, AA.5.4, AA.5.5, AA5.6 • AA6.1, AA6.2, AA.6.3 <p>1 Specific learning outcomes of the course</p> <ul style="list-style-type: none"> • Memorize the main orders of magnitude and units in the field of energy • Identify and understand the main parameters required to characterize the performance, in terms of technical, environmental, economic, societal, and ethical aspects, of energy systems and technologies • Examine the literature on a topic related to energy • Question and weigh different opinions on energy topics • Defend in a written document and/or in a presentation your analysis (technical, environmental, economic, societal, and ethical) on an energy topic
Evaluation methods	Students are assessed during an oral examination.
Teaching methods	<p>The course is organised in the form of seminars led by experts (from within or outside UCLouvain). Each seminar is supervised by a different group of students. The seminars are prepared by the students themselves (introduction of the speaker, moderation of the question-and-answer session, etc.) and led by the students themselves (preparation through in-depth study of the subject (additional reading), list of questions and reasons for their choice, etc.). Students should contact the speakers before their seminar.</p> <p>After the seminar, the moderating group must produce a summary to be shared with the other students and a series of questions/answers on the content of the presentation.</p> <p>The groups will be defined at the beginning of the semester.</p>
Content	<p>With the aim of opening up beyond the exclusively technical aspects, the teaching covers various energy-related themes in a very broad manner. Examples of themes are:</p> <ul style="list-style-type: none"> • Link between energy-economy • Philosophical roots of the energy/ecological crisis • Focus over the energy situation in Africa • AP1000 reactor and passive safety systems • Perception of energy needs • Nuclear fusion • Energy in buildings • Low carbon Belgium in 2050 • Nuclear wastes • Generation 4 nuclear reactors • Combined heat and power (CHP) and district heating • Visit of gas-steam combined power cycle • Visit of the CHP of Louvain la Neuve • Materials for the energy transition
Bibliography	<ul style="list-style-type: none"> • Selected papers and documents related to the topics of the seminars

Faculty or entity in charge	ELME
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Programmes containing this learning unit (UE)				
Program title	Acronym	Credits	Prerequisite	Learning outcomes
Master [120] in Civil Engineering	GCE2M	5		
Master [120] in Environmental Bioengineering	BIRE2M	5		
Master [120] in Mechanical Engineering	MECA2M	5		
Master [120] in Electro-mechanical Engineering	ELME2M	5		
Master [120] in Energy Engineering	NRGY2M	5		