


5.00 crédits	30.0 h + 15.0 h	Q2
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Enseignants	Contino Francesco ;Jeanmart Hervé ;
Langue d'enseignement	Anglais
Lieu du cours	Louvain-la-Neuve
Thèmes abordés	<ul style="list-style-type: none"> • World energy outlook • Energy systems • Energy technologies • Environmental, economic, societal, ethical aspects of energy
Acquis d'apprentissage	<p>A la fin de cette unité d'enseignement, l'étudiant est capable de :</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>Specific learning outcomes of the course</p> <p>1</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
Modes d'évaluation des acquis des étudiants	rapport d'approfondissement d'une des thématiques abordées. Les consignes pour le rapport seront fournies au premier cours.
Méthodes d'enseignement	<p>Suggested teaching approach</p> <ul style="list-style-type: none"> • Seminars given by internal/external experts on different topics related to energy • Briefings and/or Debriefings of the seminars based on selected readings
Contenu	<p>Non-exhaustive list of possible topics for the seminars</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 nuclear installations (SCK•CEN, Belgoprocess) • Visit of the CHP of Louvain la Neuve • Materials for the energy transition
Bibliographie	<ul style="list-style-type: none"> • Selected papers and documents related to the topics of the seminars
Faculté ou entité en charge:	ELME

Programmes / formations proposant cette unité d'enseignement (UE)				
Intitulé du programme	Sigle	Crédits	Prérequis	Acquis d'apprentissage
Master [120] : ingénieur civil mécanicien	MECA2M	5		
Master [120] : ingénieur civil électromécanicien	ELME2M	5		