MECA2420 Advanced topics in energetics.

[30h] 3 credits

This course is taught in the 2nd semester

Teacher(s):	Yann Bartosiewicz, Hervé Jeanmart
Language:	French
Level:	Second cycle

Aims

Introduce to the most recent developments in the field of energy systems.
Give access to the students to the present technical literature in the field.
Show the impact of the environmental constraints of the evolution of the energy technologies.
Motivate the students for their active participation in a course which concludes a sequence of courses in thermodynamics and energy systems.

Main themes

Advanced technologies for the transformation of primary energy.
Elements for a technological and prospective in energy.
Impact of environmental constraints.

Content and teaching methods

The selected themes consist in topical questions. For example, let us mention: estimation of the cost of the kWh produced in a fossil fuel or nuclear power plant, combined production of heat and electricity, district heating, combined steam - gas power plants, gasification of solids, fuel cells, wind energy, plant repowering, the distribution of electricity through the grid, and nuclear fusion reactors. The different themes are presented by practitioners or researchers. The students prepare the reports based on the presentations and on their own readings. These reports are then examined by the teachers and a detailed discussion takes place with the students. After correction, the final version of the reports is uploaded in the web site of the course.

Other information (prerequisite, evaluation (assessment methods), course materials recommended readings, ...)

Prerequisites: MECA 2150: Thermal cycles, or MECA 2855: Thermodynamics and energy systems.
The exam consists in the evaluation of the report.
Web site of the course:
http://www.term.ucl.ac.be/cours/meca2420/index.htm

Other credits in programs

ELME22/E	Deuxième année du programme conduisant au grade d'ingénieur civil électro-mécanicien (énergie)	(3 credits)
ELME23/E	Troisième année du programme conduisant au grade d'ingénieur civil électro-mécanicien (énergie)	(3 credits)
MECA22	Deuxième année du programme conduisant au grade d'ingénieur civil mécanicien	(3 credits)
MECA23	Troisième année du programme conduisant au grade d'ingénieur civil mécanicien	(3 credits)