Vue bloc du programme des cours

		Or	Th	Pr	Au	Cr

Bloc 1

To complete their curriculum, students must earn or validate the 75 credits of the compulsory courses (including the professional focus and the master thesis and Internship), and choose optional courses for 45 credits.
Ideally, students enrolling in the master program should have acquired the skills and knowledge corresponding to the 40 credits in " Energy " offered as part of the bachelor program in engineering.

Compulsory courses from the core curriculum

MECA0450-3	*Renewable Energy System Design* (anglais) - Pierre DEWALLEF - [24h Proj., 1j T. t.]	Q1	24	12	[+]	**5**

Optionnal courses from the core curriculum

Choose 15 credis in one of the two options

Conversion

MECA0037-1	*Thermal Power Plants and Combined Heat and Power* (anglais) - Pierre DEWALLEF - [12h Proj.]	Q2	24	24	[+]	**5**
MECA0006-1	*Cooling and low-temperature heating systems* (anglais) - Vincent LEMORT - [4h Proj., 1j T. t.]	Q2	26	26	[+]	**5**
MECA0532-1	*Turbomachines* - Koen HILLEWAERT **Corequis :** MECA0025-3 - Mécanique des fluides	Q2	26	26	-	**5**

Networks

MATH0461-2	*Introduction to numerical optimization* (anglais) - Quentin LOUVEAUX - [25h Proj.]	Q1	30	20	[+]	**5**
ELEN0445-1	*Microgrids* (anglais) - Bertrand CORNÉLUSSE - [24h Proj., 1j T. t.]	Q2	18	18	[+]	**5**
ELEC0448-1	*Planning and operation of electric power and energy systems* (anglais) - Bertrand CORNÉLUSSE, Damien ERNST, Louis WEHENKEL	Q2	26	26	-	**5**

Choose courses totaling 15 credits from the remaining option packages, within maximum 3 option packages, unless this is not feasible due to remedial courses. Courses from the remedial list should be selected as a priority if they have not yet been completed. Upon approval of the jury, 5 credits can be taken in the UNIC catalog or in the catalog of the university

[...] Upon approval by the jury, 5 credits can be chosen among the courses of the two professional foci, from an other programme at ULiège or from the UNIC course catalog

[...] The students can also choose courses from the non-selected option " Conversion " or " Networks " as elective courses in Block 1.

Remark : Electives may also be replaced by one or more courses from the undergraduate "energy" option for which competencies would not be acquired. the courses. ELEC0053-2, MECA0002-1 and SYST0022-1 are corequisite to some compulsory courses of the master program. They must be taken prioritarily, unless they were already taken as part of the bachelor in engineering, or unless the corresponding knowledge and skills have been acquired previously.

Remedial courses

ELEC0053-2	*Circuits électriques* - Bertrand CORNÉLUSSE	Q2	26	26	-	**5**
SYST0022-1	*Linear Systems Design* (anglais) - Guillaume DRION, Pierre SACRÉ - [15h Proj.]	Q2	26	26	[+]	**5**
MECA0002-1	*Thermodynamique appliquée et introduction aux machines thermiques* - Vincent LEMORT	Q1	26	26	-	**5**
MECA0025-3	*Mécanique des fluides* - Eric DELHEZ - [30h Proj.]	Q2	26	26	[+]	**5**

Low carbon production sources

ENRG0002-1	*Wind Energy* (anglais) - Thomas ANDRIANNE, Koen HILLEWAERT - [12h Proj.]	Q2	36	16	[+]	**5**
ENRG0003-1	*Hydropower* (anglais) - Sébastien ERPICUM - [20h Proj., 1j T. t.]	Q2	26	26	[+]	**5**

GENU0018-3	*Introduction to Nuclear Engineering and Power Plant Technnologies* (anglais) - Pierre DEWALLEF	Q2	26	26	-	**5**
Energy in buildings, transport and mobility						
ARCH3272-1	*Building performance simulation and monitoring* (anglais) - *Partim 1* - Shady ATTIA - *Partim 2* - Shady ATTIA - [70h Proj.]	Q1	 15 15	 15 25	 - [+]	**5**
MECA0034-1	*Energy flexibility in buildings* (anglais) - Vincent LEMORT	Q1	26	26	-	**5**
GEOL1046-1	*Geothermal energy* (anglais) - Bertrand FRANÇOIS, Philippe ORBAN - [40h Proj., 1j T. t.]	Q2	18	15	[+]	**5**
MECA0527-1	*Electric, hybrid and fuel cell vehicles* (anglais) - Pierre DUYSINX - [5h Labo., 15h Proj.]	Q1	30	10	[+]	**5**
GCIV0008-2	*Energy and transport* (anglais) - Mario COOLS - [25h Proj.]	Q1	30	15	[+]	**5**
MECA0536-1	*Hydrogen technologies in mobility* (anglais) - [10h Labo., 10h Proj., 2j T. t.]	Q1	40	-	[+]	**5**
Conversion technologies & Industry						
MECA0032-1	*Flow in turbomachines* (anglais) - Koen HILLEWAERT - [60h Proj.]	Q1	26	26	[+]	**5**
MECA0041-1	*Internal combustion engine* (anglais) - *Partim 1 : Fundamental aspects* - Marc NÉLIS - [1j T. t., 15h Proj.] - *Partim 2 : Application to propulsion* - Marc NÉLIS - [10h Proj., 0,5j T. t.]	Q2	 15 10	 15 10	 [+] [+]	**5**
ELEC0041-1	*Modelling and design of electromagnetic systems* (anglais) - Christophe GEUZAINE	Q2	26	26	-	**5**
MECA0531-1	*Experimental Evaluation of Components and Processes* (anglais) - [6h Labo., 14h Proj.]	Q1	23	17	[+]	**5**
ENRG0004-1	*CO2 capture, utilisation and storage* (anglais) - Motiar RAHAMAN - [4j T. t.]	Q2	26	22	[+]	**5**
CHIM9330-1	*Management and safety of industrial processes* (anglais) - *Partim "Safety"* - Angélique LÉONARD, Grégoire LÉONARD, Dominique TOYE, Dominique TOYE - [2j T. t.] - *Partim "Management"* - Angélique LÉONARD, Grégoire LÉONARD - [1j T. t.]	Q1	 25 15	 - -	 [+] [+]	**5**
Decision making						
ELEN0062-1	*Introduction to machine learning* (anglais) - Pierre GEURTS, Louis WEHENKEL - [40h Proj.]	Q1	30	5	[+]	**5**
MATH0462-1	*Discrete optimization* (anglais) - Quentin LOUVEAUX - [25h Proj.]	Q2	30	20	[+]	**5**
INFO8010-1	*Deep learning* (anglais) - Gilles LOUPPE - [60h Proj.]	Q2	30	-	[+]	**5**
MQGE9007-1	*Advanced Modeling Techniques in Optimization* (anglais) - Quentin LOUVEAUX, N...	Q1	30	-	-	**5**
Compulsory courses within the focus						
CHIM0695-2	*Modelling of chemical & energy processes* (anglais) - Grégoire LÉONARD	Q1	20	32	-	**5**
ELEC0055-3	*Element of power Electronics* (anglais) - *Partim A* - Fabrice FREBEL - *Partim B* - Fabrice FREBEL	Q1	 30 -	 6 20	 - -	**5**
ELEC0447-1	*Analysis of electric power and energy systems* (anglais) - Bertrand CORNÉLUSSE - [1j T. t.]	Q1	26	26	[+]	**5**
ENRG0001-1	*Energy challenge (including seminars)* (anglais) - Bertrand CORNÉLUSSE, Pierre DEWALLEF, Samuel GENDEBIEN, Vincent LEMORT, Grégoire LÉONARD - [3j T. t., 80h Proj.]	TA	30	-	[+]	**10**

Bloc 2

Compulsory courses from the core curriculum

CHIM0664-3	*Electrochemical energy conversion and storage* (anglais) - *partim 1* - Nathalie JOB - *partim 3* - [3j T. t.]	Q1	 15 11	 - 7	 - [+]	**5**
GEST3162-1	*Principles of management* (anglais) - Michaël PARMENTIER, Willem STANDAERT - [25h Proj.]	Q1	30	-	[+]	**5**
ATFE2003-1	*Travail de fin d'études et stage* - *Travail de fin d'études* - COLLÉGIALITÉ, Vincent LEMORT - [750h Proj.] - *Stage d'insertion professionnelle*	TA	 - -	 - -	 [+] -	**30**

Optionnal courses from the core curriculum

Choose 5 credis in one of the two options

Conversion

ENRG0005-1	*Power-to-fuel systems* (anglais) - Motiar RAHAMAN - [4j T. t.]	Q1	26	22	[+]	**5**

Networks

ENRG0006-1	*Energy Transition : Modeling and Scenario Analysis* (anglais) - Xavier FETTWEIS, Sylvain QUOILIN	Q2	26	26	-	**5**
ELEC0449-1	*Practices and evolution of the electric power and energy industry* (anglais) - Olivier BRONKART, Bertrand CORNÉLUSSE, Damien ERNST - [12h Proj., 6j T. t.]	Q2	18	18	[+]	**5**

Choose courses totaling 10 credits from the remaining option packages, within maximum 3 option packages, unless this is not feasible due to remedial courses. Courses from the remedial list should be selected as a priority if they have not yet been completed. Upon approval of the jury, 5 credits can be taken in the UNIC catalog or in the catalog of the university

[...] The students can also choose courses from the non-selected option " Conversion " or " Networks " as elective courses in Block 2.

Remark : Electives may also be replaced by one or more courses from the undergraduate "energy" option for which competencies would not be acquired. the courses. ELEC0053-2, MECA0002-1 and SYST0022-1 are corequisite to some compulsory courses of the master program. They must be taken prioritarily, unless they were already taken as part of the bachelor in engineering, or unless the corresponding knowledge and skills have been acquired previously.

Remedial courses

ELEC0053-2	*Circuits électriques* - Bertrand CORNÉLUSSE	Q2	26	26	-	**5**
SYST0022-1	*Linear Systems Design* (anglais) - Guillaume DRION, Pierre SACRÉ - [15h Proj.]	Q2	26	26	[+]	**5**
MECA0002-1	*Thermodynamique appliquée et introduction aux machines thermiques* - Vincent LEMORT	Q1	26	26	-	**5**
MECA0025-3	*Mécanique des fluides* - Eric DELHEZ - [30h Proj.]	Q2	26	26	[+]	**5**

Low carbon production sources

ENRG0002-1	*Wind Energy* (anglais) - Thomas ANDRIANNE, Koen HILLEWAERT - [12h Proj.]	Q2	36	16	[+]	**5**
ENRG0003-1	*Hydropower* (anglais) - Sébastien ERPICUM - [20h Proj., 1j T. t.]	Q2	26	26	[+]	**5**
GENU0018-3	*Introduction to Nuclear Engineering and Power Plant Technnologies* (anglais) - Pierre DEWALLEF	Q2	26	26	-	**5**

Energy in buildings, transport and mobility

ARCH3272-1	*Building performance simulation and monitoring* (anglais) - *Partim 1* - Shady ATTIA - *Partim 2* - Shady ATTIA - [70h Proj.]	Q1	 15 15	 15 25	 - [+]	**5**
MECA0034-1	*Energy flexibility in buildings* (anglais) - Vincent LEMORT	Q1	26	26	-	**5**

GEOL1046-1	*Geothermal energy* (anglais) - Bertrand FRANÇOIS, Philippe ORBAN - [40h Proj., 1j T. t.]	Q2	18	15	[+]	**5**
MECA0527-1	*Electric, hybrid and fuel cell vehicles* (anglais) - Pierre DUYSINX - [5h Labo., 15h Proj.]	Q1	30	10	[+]	**5**
GCIV0008-2	*Energy and transport* (anglais) - Mario COOLS - [25h Proj.]	Q1	30	15	[+]	**5**
MECA0536-1	*Hydrogen technologies in mobility* (anglais) - [10h Labo., 10h Proj., 2j T. t.]	Q1	40	-	[+]	**5**
Conversion technologies & Industry						
MECA0032-1	*Flow in turbomachines* (anglais) - Koen HILLEWAERT - [60h Proj.]	Q1	26	26	[+]	**5**
MECA0041-1	*Internal combustion engine* (anglais) - *Partim 1 : Fundamental aspects* - Marc NÉLIS - [1j T. t., 15h Proj.] - *Partim 2 : Application to propulsion* - Marc NÉLIS - [10h Proj., 0,5j T. t.]	Q2	 15 10	 15 10	 [+] [+]	**5**
ELEC0041-1	*Modelling and design of electromagnetic systems* (anglais) - Christophe GEUZAINE	Q2	26	26	-	**5**
MECA0531-1	*Experimental Evaluation of Components and Processes* (anglais) - [6h Labo., 14h Proj.]	Q1	23	17	[+]	**5**
ENRG0004-1	*CO2 capture, utilisation and storage* (anglais) - Motiar RAHAMAN - [4j T. t.]	Q2	26	22	[+]	**5**
CHIM9330-1	*Management and safety of industrial processes* (anglais) - *Partim "Safety"* - Angélique LÉONARD, Grégoire LÉONARD, Dominique TOYE, Dominique TOYE - [2j T. t.] - *Partim "Management"* - Angélique LÉONARD, Grégoire LÉONARD - [1j T. t.]	Q1	 25 15	 - -	 [+] [+]	**5**
Decision making						
ELEN0062-1	*Introduction to machine learning* (anglais) - Pierre GEURTS, Louis WEHENKEL - [40h Proj.]	Q1	30	5	[+]	**5**
MATH0462-1	*Discrete optimization* (anglais) - Quentin LOUVEAUX - [25h Proj.]	Q2	30	20	[+]	**5**
INFO8010-1	*Deep learning* (anglais) - Gilles LOUPPE - [60h Proj.]	Q2	30	-	[+]	**5**
MQGE9007-1	*Advanced Modeling Techniques in Optimization* (anglais) - Quentin LOUVEAUX, N...	Q1	30	-	-	**5**
Compulsory courses within the focus						
ELEC0018-1	*Energy markets and regulation* (anglais) - Damien ERNST	Q1	39	13	-	**5**