Block view of the study programme

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Block 1

Programme only open to students enrolled before the 2023-2024 academic year.

Depending on your educational background or depending on the focus, it is possible that the prerequisites / corequisites for the 1st year of the programme are presented in the block 2. You are therefore invited to read through the list of courses in block 2 even if you are registering for the first time in this master.

Within the framework of their Master in Electro-mechanical Engineering, all students must follow or validate the 65 credits of joint training (including placement and final year dissertation), the 25 credits of optional courses, and the 30 credits of the professional focus.
Ideally, students studying for the master¿s degree will have acquired the competences and knowledge corresponding to the 50 credits of technical courses specific to the field of 'Mechanics' and 'Electricity', taught within the framework of the Bachelor in Civil Engineering.

Focus courses

SYST0022-1	*Linear Systems Design* (english language) - Guillaume DRION, Pierre SACRÉ - [15h Proj.]	Q2	26	26	[+]	**5**
MECA0532-1	*Turbomachines* - Koen HILLEWAERT	Q1	26	26	-	**6**
MECA0041-2	*Internal combustion engine, Part 1 Fundamental aspects* (english language) - Marc NÉLIS - [1d FW, 15h Proj.] **Corequisite :** MECA0002-1 - Thermodynamique appliquée et introduction aux machines thermiques	Q2	15	15	[+]	**3**
ELEC0055-2	*Element of power Electronics, Part A* (english language) - Fabrice FREBEL	Q1	30	6	-	**3**
MECA0531-1	*Experimental Evaluation of Components and Processes* (english language) - Samuel GENDEBIEN - [12h Labo., 1d FW]	Q1	26	14	[+]	**3**
APRI0003-2	*Energetics Integrated Project* - Pierre DEWALLEF, Samuel GENDEBIEN, Vincent LEMORT - [5d FW] **Corequisite :** MECA0450-3 - Renewable Energy System Design MECA0006-1 - Cooling and low-temperature heating systems	TA	30	80	[+]	**10**

Core curriculum compulsory courses

MECA0006-1	*Cooling and low-temperature heating systems* (english language) - Vincent LEMORT - [4h Proj.]	Q2	26	26	[+]	**5**
CHIM9315-1	*Sustainable management of fuels: supply, synthesis and use* - Angélique LÉONARD, Grégoire LÉONARD - [1d FW, 10h Proj.]	Q1	50	-	[+]	**5**
CHIM0695-2	*Modelling of chemical & energy processes* (english language) - Grégoire LÉONARD	Q1	20	32	-	**5**
ELEC0447-1	*Analysis of electric power and energy systems* (english language) - Bertrand CORNÉLUSSE - [1d FW]	Q1	26	26	[+]	**5**
MECA0450-3	*Renewable Energy System Design* (english language) - Pierre DEWALLEF - [24h Proj., 1d FW]	Q1	24	12	[+]	**5**
MECA0037-1	*Thermal Power Plants and Combined Heat and Power* (english language) - Pierre DEWALLEF - [12h Proj.] **Corequisite :** MECA0002-1 - Thermodynamique appliquée et introduction aux machines thermiques	Q2	24	24	[+]	**5**

Block 2

Core curriculum compulsory courses

ATFE2003-1	*Master thesis and internship* - *Master thesis* - COLLÉGIALITÉ, Vincent LEMORT - [750h Proj.] - *Professional integration internship*	TA	 - -	 - -	 [+] -	**30**
GEST3162-1	*Principles of management* (english language) - Thomas PIRSOUL,	Q1	30	-	[+]	**5**

TANDAERT - [25h Proj.]

Common core courses

Choose courses totalling 25 credits from the elective courses list.

[...] One course to be chosen from the courses' programme of other masters of the Factulty of applied sciences or du catalogue UNIC (with the approval of the President of the Jury of the cycle).

Students who have not followed the courses MECA0002-1, ELEC0053-2 and ELEC0431-2 from the bachelor in civil engineering programme or acquired the equivalent knowledge and skills have to choose in priority these three courses in their study programme ; theses courses are corequisites of compulsory courses of the master.

MECA0002-1	*Applied Thermodynamics and Introduction to Heat Engines* - Vincent LEMORT	Q1	26	26	-	**5**
ELEC0053-2	*Electric circuits* - Bertrand CORNÉLUSSE	Q2	26	26	-	**5**
ELEC0431-2	*Electromagnetic energy conversion* (english language) - Christophe GEUZAINE - [15h Labo.]	Q2	30	15	[+]	**5**

Language courses

[...] Maximum five language course credits from among the list below or from among the ISLV courses in other faculties

LANG1957-1	*Dutch for Engineers, part 1* (dutch language) - Claudine COLIN	Q1	36	-	-	**3**
LANG1958-1	*German for Engineers, Part 1* (german language) - Françoise CARL	Q1	36	-	-	**3**
LANG2978-1	*Dutch for Engineers, part 2* (dutch language) - Claudine COLIN **Corequisite :** LANG1957-1 - Néerlandais pour l'ingénieur, partim 1	Q2	24	-	-	**2**
LANG2979-1	*German for Engineers, part 2* (german language) - Françoise CARL **Corequisite :** LANG1958-1 - Allemand pour l'ingénieur, partim 1	Q2	24	-	-	**2**

Power production, transport and distribution

CHIM0664-1	*Electrochemical energy conversion and storage* (english language) - *part 1* - Nathalie JOB - *part 2* - Nathalie JOB - [15h Labo.]	Q1	15 -	- -	- [+]	**3**
GENU0018-3	*Introduction to Nuclear Engineering and Power Plant Technnologies* (english language) - Pierre DEWALLEF **Corequisite :** MECA0037-1 - Thermal Power Plants and Combined Heat and Power	Q2	26	26	-	**5**
ELEN0445-1	*Microgrids* (english language) - Bertrand CORNÉLUSSE - [24h Proj., 1d FW]	Q1	18	18	[+]	**5**
MECA0041-3	*Internal combustion engine, Part 2 Application to propulsion* (english language) - Marc NÉLIS - [10h Proj., 0,5d FW]	Q2	10	10	[+]	**2**

Rational use of energy

ARCH3272-2	*Building performance simulation and monitoring, Part 1* (english language) - Shady ATTIA	Q1	15	15	-	**3**
MECA0034-1	*Energy flexibility in buildings* (english language) - Vincent LEMORT	Q1	26	26	-	**5**
ELEN0074-1	*Sensors, microsensors and instrumentation* (english language) - Philippe VANDERBEMDEN - [20h Labo.]	Q2	30	-	[+]	**5**
MECA0501-1	*Thermal Energy Management in vehicles* (english language) - Vincent LEMORT	Q1	26	26	-	**5**

Advanced modeling and simulation

ELEC0041-1	*Modelling and design of electromagnetic systems* (english language) - Christophe GEUZAINE (Odd years)	Q2	26	26	-	**5**

MECA0032-1	*Flow in turbomachines* (english language) - Koen HILLEWAERT - [60h Proj.]	Q1	26	26	[+]	**5**
MATH0461-2	*Introduction to numerical optimization* (english language) - Quentin LOUVEAUX - [25h Proj.]	Q1	30	20	[+]	**5**
MECA0027-1	*Structural and multidisciplinary optimization* (english language) - Pierre DUYSINX, Patricia TOSSINGS - Suppl : Michaël BRUYNEEL - [18h Proj.]	Q1	30	12	[+]	**5**

Other optional courses

ELEC0018-1	*Energy markets and regulation* (english language) - Damien ERNST	Q1	39	13	-	**5**
MECA0462-2	*Materials selection* (english language) - Anne MERTENS, Davide RUFFONI - [30h Proj., 1d FW]	Q1	26	26	[+]	**5**
MECA0527-1	*Electric, hybrid and fuel cell vehicles* (english language) - Pierre DUYSINX - [5h Labo., 15h Proj.]	Q1	30	10	[+]	**5**

Bloc d'aménagement du programme de l'année

Bridging courses Master in electro-mechanical engineering

Optional courses

Each student's programme will be determined by the jury depending on their prior training. If an applicant does not meet certain prerequisites, his or her programme may include up to 60 credits of bridging courses, essentially taken from the list below :

MECA0445-2	*Heat transfer* (english language) - Pierre DEWALLEF, Vincent TERRAPON - [9h Proj.]	Q2	28	24	[+]	**5**
MECA0012-6	*Solid mechanics* - Laurent DUCHENE - [15h Proj.]	Q2	26	26	[+]	**5**
ELEC0052-2	*Electric measurements: foundations and applications* - Philippe VANDERBEMDEN - [24h Labo.]	Q1	30	6	[+]	**5**
MECA0025-3	*Fluid Mechanics* - Eric DELHEZ - [30h Proj.]	Q2	26	26	[+]	**5**
MECA0036-2	*Finite Element Method* (english language) - JeanPhilippe PONTHOT - [40h Proj.]	Q2	26	26	[+]	**5**
MECA0155-2	*Dynamics of mechanical systems* - Loïc SALLES - [20h Proj.]	Q1	26	26	[+]	**5**
PHYS0904-4	*Physics of materials* - Luc COURARD, Anne MERTENS - [1d FW]	Q2	26	26	[+]	**5**
MATH0006-3	*Introduction to numerical analysis* (english language) - Quentin LOUVEAUX	Q1	20	20	-	**4**
MECA0001-2	*Mechanics of materials* - JeanFrançois DEMONCEAU, Laurent DUCHENE - [2h Labo., 12h Proj.]	Q1	27	25	[+]	**5**
LANG0039-2	*English 2, English for Engineering* (english language) - Clara BRERETON, Véronique DOPPAGNE, Pascale DRIANNE, Stéphane GHIJSEN, Philippe JEUKENNE, Martin POLSON, David VANMANSHOVEN - [20h Proj.]	TA	-	30	[+]	**3**

[...] Choose maximum 13 credits to complete the curriculum