Block view of the study programme

		Or	Th	Pr	Au	Cr

Block 1

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.

Compulsory courses

MECA0522-1	*Heat exchangers, constructive and fundamental aspects* - Philippe NGENDAKUMANA - [16h Proj.] **Corequisite :** MECA0002-1 - Thermodynamique appliquée et introduction aux machines thermiques	Q1	15	15	[+]	**3**
CHIM0071-4	*Reduction of pollutants from combustion* - Angélique LÉONARD - [1d FW]	Q1	30	-	[+]	**3**
MECA0006-1	*Thermal Machines and Systems* - Vincent LEMORT - [4h Proj.] **Corequisite :** MECA0522-1 - Echangeurs de chaleur : aspects fondamentaux et constructifs	Q1	26	26	[+]	**5**
MECA0462-2	*Materials selection* (english language) - Anne MERTENS, Davide RUFFONI - [30h Proj., 1d FW]	Q1	26	26	[+]	**5**
ELEC0014-3	*Introduction to electric power and energy systems* (english language) - Thierry VAN CUTSEM - [1d FW] **Corequisite :** ELEC0053-2 - Circuits électriques ELEC0431-2 - Electromagnetic energy conversion	Q1	28	12	[+]	**4**
MECA0467-1	*Turbomachines* - Koen HILLEWAERT **Corequisite :** MECA0002-1 - Thermodynamique appliquée et introduction aux machines thermiques	Q2	26	26	-	**5**
SYST0003-1	*Linear control systems* (english language) - *Part A* - Guillaume DRION - *Part C* - Guillaume DRION - [6h Labo.]	Q1	26 -	6 20	- [+]	**5**

Optional courses

Choose one focus from the following :

Professional focus in energetics

APRI0003-2	*Energetics Integrated Project* - Pierre DEWALLEF, Vincent LEMORT, Philippe NGENDAKUMANA - [5d FW] **Corequisite :** MECA0006-1 - Machines et systèmes thermiques MECA0450-3 - Renewable energies MECA0522-1 - Echangeurs de chaleur : aspects fondamentaux et constructifs	TA	30	80	[+]	**8**
MECA0037-1	*Thermal power stations and cogeneration* - Pierre DEWALLEF, Angélique LÉONARD - [12h Proj.] **Corequisite :** MECA0522-1 - Echangeurs de chaleur : aspects fondamentaux et constructifs MECA0467-1 - Turbomachines MECA0002-1 - Thermodynamique appliquée et introduction aux machines thermiques	Q2	24	24	[+]	**5**
MECA0046-1	*Heat exchangers : networks and rational use of energy* - MarieNoëlle DUMONT - [20h Proj.]	Q2	15	5	[+]	**2**
MECA0450-3	*Renewable energies* (english language) - Pierre DEWALLEF - [24h Proj.,	Q1	24	12	[+]	**5**

	1d FW]					
ELEC0018-1	*Energy market* (english language) - Damien ERNST	Q2	39	13	-	**5**
MECA0041-1	*Internal combustion engine* - Philippe NGENDAKUMANA - [1,5d FW, 20h Proj.] **Corequisite :** MECA0002-1 - Thermodynamique appliquée et introduction aux machines thermiques	Q2	26	26	[+]	**5**

Professional focus on sustainable automotive engineering (for students who chose this specialisation in 2017-2018)

MECA0492-3	*Vehicle dynamics* (english language)	Q2	15	10	-	**2**
MECA0497-3	*Vehicle performance* (english language) - Mustapha BELHABIB, Pierre DUYSINX - [1d FW] **Corequisite :** MECA0501-1 - Thermal and Electrical Management of vehicles MECA0500-2 - Hybrid electric and fuel cell vehicles MECA0499-2 - Electric traction motors MECA0498-3 - Internal combustion engines	Q2	25	15	[+]	**3**
MECA0498-3	*Internal combustion engines* (english language) **Corequisite :** MECA0501-1 - Thermal and Electrical Management of vehicles MECA0500-2 - Hybrid electric and fuel cell vehicles MECA0499-2 - Electric traction motors MECA0497-2 - Vehicle performance	Q2	25	15	-	**3**
MECA0499-2	*Electric traction motors* (english language) - Johan GYSELINCK **Corequisite :** MECA0501-1 - Thermal and Electrical Management of vehicles MECA0500-2 - Hybrid electric and fuel cell vehicles MECA0498-3 - Internal combustion engines MECA0497-2 - Vehicle performance	Q1	15	10	-	**2**
MECA0500-4	*Hybrid electric and fuel cell vehicles* (english language) - *Part A* - Pierre DUYSINX, Nathalie JOB - *Part B* **Corequisite :** MECA0501-1 - Thermal and Electrical Management of vehicles MECA0499-2 - Electric traction motors MECA0498-3 - Internal combustion engines MECA0497-2 - Vehicle performance	Q1	 25 -	 15 10	 - -	**2**
MECA0501-1	*Thermal and Electrical Management of vehicles* (english language) - Vincent LEMORT **Corequisite :** MECA0500-2 - Hybrid electric and fuel cell vehicles MECA0499-2 - Electric traction motors MECA0498-3 - Internal combustion engines MECA0497-2 - Vehicle performance	Q1	15	10	-	**3**
APRI0010-1	*Integrated project of automotive design* - Maarten ARNST, Eric BÉCHET, JeanLuc BOZET, Olivier BRULS, Christophe COLLETTE, Pierre DUYSINX, Tristan GILET, Davide RUFFONI, Jean STUTO - [250h Proj., 5d FW]	TA	50	-	[+]	**15**

Block 2

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.

Compulsory courses

ATFE2003-1	*Master Thesis* - COLLÉGIALITÉ, Pierre DEWALLEF - [750h Proj.]	TA	-	-	[+]	**25**
ASTG0117-1	*Integration internship* (english language) - Pierre DEWALLEF	TA	-	-	-	**5**

Corequisite :
ATFE2003-1 - Travail de fin d'études
GEST3162-1 - Principles of management

GEST3162-1	*Principles of management* (english language) - Michael GHILISSEN, François PICHAULT	Q1	25	25	-	**5**

Optional courses

Choose courses totalling 25 credits from the elective courses list.

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**
LANG2978-1	*Dutch for engineer, part 2* - Claudine COLIN	Q2	24	-	-	**2**
LANG1958-1	*German for engineer, Part 1* (german language) - Françoise CARL	Q1	36	-	-	**3**
LANG2979-1	*German for engineers, part 2* - Françoise CARL, ISLV	Q2	24	-	-	**2**

Power production, transport and distribution

CHIM0664-1	*Electrochemical energy conversion and storage* (english language) - Nathalie JOB - [15h Labo.]	Q1	15	-	[+]	**3**
ELEC0041-1	*Modelling and design of electromagnetic systems* (english language) - Christophe GEUZAINE	Q2	26	26	-	**5**
GENU0018-3	*Nuclear Engineering and Nuclear Power Plant Technology* - Pierre DEWALLEF **Corequisite :** MECA0037-1 - Centrales thermiques et cogénération	Q1	26	26	-	**5**
ELEC0047-1	*Electric power systems dynamics, control and stability* (english language) - Thierry VAN CUTSEM - [25h Proj.] **Prerequisite :** ELEC0014-3 - Introduction to electric power and energy systems **Corequisite :** ELEC0029-2 - Electric power systems analysis	Q1	30	8	[+]	**5**
ELEC0055-1	*Element of power Electronics* (english language) - *Part A* - Fabrice FREBEL - *Part B* - Fabrice FREBEL - [24h Proj.]	Q1	30 -	6 -	- [+]	**5**
MECA0033-1	*Heat and Material Transfer Modelling*	Q2	26	26	-	**5**
ELEC0029-2	*Electric power systems analysis* (english language) - Thierry VAN CUTSEM - [25h Proj.] **Prerequisite :** ELEC0014-3 - Introduction to electric power and energy systems	Q2	23	4	[+]	**3**
ELEC0436-1	*Electric Energy Management Systems* (english language) - Patricia ROUSSEAUX - Suppl : Louis WEHENKEL - [12h Labo., 20h Proj.] **Prerequisite :** ELEC0014-3 - Introduction to electric power and energy systems	Q1	20	16	[+]	**5**
ELEC0445-1	*High Voltage Direct Current (HVDC) grids* (english language) -	Q2	16	12	-	**3**

	OUSSEAUX					
ELEN0445-1	*Microgrids* (english language) - Bertrand CORNÉLUSSE	Q1	18	18	-	**5**

Rational use of energy in buildings and industry

ARCH0117-1	*Introduction to building thermals* - JeanMarie HAUGLUSTAINE	Q1	15	15	-	**3**
MECA0034-1	*Rational use of energy in buildings* - Vincent LEMORT	Q1	26	26	-	**5**
ELEN0074-1	*Sensors, microsensors and instrumentation* (english language) - Philippe VANDERBEMDEN - [20h Labo.]	Q2	30	-	[+]	**5**

Advanced modeling and simulation

MECA0032-1	(pas organisé en 2018-2019) *Flow in turbomachineries* (english language) - [60h Proj.]	TA	26	26	[+]	**5**
MECA0124-1	*Combustion modelling* - Philippe NGENDAKUMANA	Q1	26	26	-	**5**
MECA0514-1	*Introduction to dynamic modeling of thermal systems* - Sylvain QUOILIN (Odd years) **Corequisite :** MECA0006-1 - Machines et systèmes thermiques	Q1	15	15	-	**3**
MECA0515-1	*Advanced thermal systems* (english language) - Vincent LEMORT (Odd years) **Prerequisite :** MECA0006-1 - Machines et systèmes thermiques	Q2	15	15	-	**3**
MATH0461-2	*Introduction to numerical optimization* (english language) - Quentin LOUVEAUX - [25h Proj.]	Q1	30	20	[+]	**5**

Other optional courses

MECA0018-2	*Manufacturing processes* (english language) - Yves MARCHAL - [15h Labo., 11h Proj., 0,5d FW]	Q2	30	-	[+]	**5**
MECA0027-1	*Structural and multidisciplinary optimization* (english language) - Pierre DUYSINX, Patricia TOSSINGS - [18h Proj.]	Q1	30	12	[+]	**5**
PROJ0011-2	*Personal student project* (english language) - Georges DE PELSEMAEKER, Pierre DUYSINX, Liesbet GERIS, Grégoire LÉONARD, Quentin LOUVEAUX - [150h Proj.]	TA	-	-	[+]	**5**
MECA0501-1	*Thermal and Electrical Management of vehicles* (english language) - Vincent LEMORT	Q1	15	10	-	**3**

[...] Choose one course from the course's programme of other master of the Faculty of Applied Sciences (with the approval of the cycle's Jusry president)

Sustainable automotive engineering

Notice : this course list is for students enrolled in Block 1 of the master's degree in 2016-2017, who have already taken the specialised focus in mechanical engineering.

MECA0494-3	*Vehicle components I* (english language) - Olivier BRULS, Pierre DUYSINX **Corequisite :** MECA0496-2 - Materials for automotive applications MECA0493-2 - Vehicle aerodynamics MECA0492-2 - Vehicle dynamics	Q1	25	15	-	**3**
MECA0492-2	*Vehicle dynamics* (english language) - Pierre DUYSINX	Q1	15	10	-	**2**
MECA0493-2	*Vehicle aerodynamics* (english language) - Grigorios DIMITRIADIS **Corequisite :** MECA0496-2 - Materials for automotive applications MECA0494-3 - Vehicle components I MECA0492-2 - Vehicle dynamics	Q1	15	10	-	**2**
MECA0496-2	*Materials for automotive applications* (english language) - Stoyan GAYDARDZHIEV, Anne MERTENS	Q1	15	10	-	**2**

	Corequisite : MECA0494-3 - Vehicle components I MECA0493-2 - Vehicle aerodynamics MECA0492-2 - Vehicle dynamics					
MECA0497-2	*Vehicle performance* (english language) - Mustapha BELHABIB, Pierre DUYSINX - [1d FW] **Corequisite :** MECA0501-1 - Thermal and Electrical Management of vehicles MECA0500-2 - Hybrid electric and fuel cell vehicles MECA0499-2 - Electric traction motors MECA0498-2 - Internal combustion engines	Q1	25	15	[+]	**3**
MECA0498-2	*Internal combustion engines* (english language) - Philippe NGENDAKUMANA **Corequisite :** MECA0501-1 - Thermal and Electrical Management of vehicles MECA0500-2 - Hybrid electric and fuel cell vehicles MECA0499-2 - Electric traction motors MECA0497-2 - Vehicle performance	Q1	25	15	-	**3**
MECA0499-2	*Electric traction motors* (english language) - Johan GYSELINCK **Corequisite :** MECA0501-1 - Thermal and Electrical Management of vehicles MECA0500-2 - Hybrid electric and fuel cell vehicles MECA0498-2 - Internal combustion engines MECA0497-2 - Vehicle performance	Q1	15	10	-	**2**
MECA0500-4	*Hybrid electric and fuel cell vehicles* (english language) - *Part A* - Pierre DUYSINX, Nathalie JOB - *Part B* **Corequisite :** MECA0501-1 - Thermal and Electrical Management of vehicles MECA0499-2 - Electric traction motors MECA0498-2 - Internal combustion engines MECA0497-2 - Vehicle performance	Q1	25 -	15 10	- -	**2**
MECA0501-1	*Thermal and Electrical Management of vehicles* (english language) - Vincent LEMORT **Corequisite :** MECA0500-2 - Hybrid electric and fuel cell vehicles MECA0499-2 - Electric traction motors MECA0498-2 - Internal combustion engines MECA0497-2 - Vehicle performance	Q1	15	10	-	**3**
PROJ0013-1	*Innovation project in automotive engineering* (english language) - Olivier BRULS, Georges DE PELSEMAEKER, Grigorios DIMITRIADIS, Pierre DUYSINX, Vincent LEMORT - [80h Proj., 1d FW]	Q1	20	-	[+]	**8**

Bloc d'aménagement du programme de l'année

Additional ECTS 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 additional course credits essentially taken from the list below :

MECA0445-2	*Heat transfer* (english language) - Pierre DEWALLEF, Vincent TERRAPON - [4h Labo., 9h Proj.]	Q2	28	24	[+]	**5**
MECA0012-6	*Solid mechanics* - Laurent DUCHENE - [15h Proj.]	Q2	26	26	[+]	**5**

ELEC0052-2	*Analysis and Design of Electrical Measuring Systems* - 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* - JeanClaude GOLINVAL - [5h Labo., 10h Proj.]	Q1	26	26	[+]	**5**
PHYS0904-4	*Physics of materials* - 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* - JeanPierre JASPART - [2h Labo., 12h Proj.]	Q1	27	25	[+]	**5**
LANG0039-2	*English 2, English for Engineering* (english language) - Christine FILOT, ISLV - [20h Proj.]	TA	-	30	[+]	**3**

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