

Cycle view of the study programme

B1 Or Th Pr Au Cr

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.

As part of the Master in electro-mechanical engineering, students must follow or approve 65 core training credits (including placement and final dissertation), 25 credits of optional courses and 30 credits from one of the two professional focuses. Ideally, students taking the Masters will have acquired the skills and knowledge corresponding to 50 credits for the specific technical classes in the field of "mechanics" and "electricity" organised as part of the Bachelor in civil engineering.

Compulsory courses (B1 : 30Cr, B2 : 35Cr)

MECA0522-1	<i>Heat exchangers, constructive and fundamental aspects</i> - Philippe NGENDAKUMANA - [16h Proj.] Corequisite : MECA0002-1 - Thermodynamique appliquée et introduction aux machines thermiques	B1	Q1	15	15	[+]	3
CHIM0071-4	<i>Reduction of pollutants from combustion</i> - Angélique LÉONARD - [1d FW]	B1	Q1	30	-	[+]	3
MECA0006-1	<i>Thermal Machines and Systems</i> - Vincent LEMORT - [4h Proj.] Corequisite : MECA0046-1 - Echangeurs de chaleur : aspects réseaux d'échangeurs et U.R.E.	B1	Q1	30	30	[+]	5
MECA0462-2	<i>Materials selection</i> (english language) - Davide RUFFONI - [30h Proj., 1d FW]	B1	Q1	30	30	[+]	5
ELEC0014-3	<i>Introduction to electric power and energy systems</i> (english language) - Thierry VAN CUTSEM - [1d FW] Corequisite : ELEC0053-2 - Circuits électriques ELEC0431-2 - Electromagnetic energy conversion	B1	Q1	28	12	[+]	4
MECA0467-1	<i>Turbomachines</i> - Olivier LÉONARD Corequisite : MECA0002-1 - Thermodynamique appliquée et introduction aux machines thermiques	B1	Q2	30	30	-	5
SYST0003-1	<i>Linear control systems</i> (english language) - Guillaume DRION - [6h Labo.]	B1	Q1	30	30	[+]	5
ATFE2003-1	<i>Final work</i> - COLLÉGIALITÉ, Pierre DEWALLEF - [750h Proj.]	B2	TA	-	-	[+]	25
ASTG0117-1	<i>Integration internship</i> (english language) - Pierre DEWALLEF Corequisite : ATFE2003-1 - Travail de fin d'études GEST3162-1 - Principles of management	B2	TA	-	-	-	5
GEST3162-1	<i>Principles of management</i> (english language) - Michael GHILISSEN, François PICHault, Thierry PIRONET, Didier VAN CAILLIE - Suppl : Fanny FOX	B2	Q1	25	25	-	5

Optional courses (B1 : 30Cr, B2 : 25Cr)

Choose courses totalling 25 credits from the elective courses list. (B2 : 25Cr)

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 ; these courses are corequisites of compulsory courses of the master.

PROJ0011-1	<i>Personal student project</i> (english language) - Bernard BOIGELOT, COLLÉGIALITÉ - [150h Proj.]	B2	TA	-	-	[+]	5
MECA0002-1	<i>Applied Thermodynamics and Introduction to Heat Engines</i> - Olivier LÉONARD	B2	Q1	30	30	-	5
ELEC0053-2	<i>Electric circuits</i> - Patricia ROUSSEAU	B2	Q2	30	30	-	5
ELEC0431-2	<i>Electromagnetic energy conversion</i> (english language) - Christophe GEUZAINÉ - [15h Labo.]	B2	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	<i>Dutch for Engineers, part 1</i> (dutch language) - Claudine COLIN	B2	Q1	36	-	-	3
LANG2978-1	<i>Dutch for engineer, part 2</i> - Claudine COLIN	B2	Q2	24	-	-	2
LANG1958-1	<i>German for engineer, Part 1</i> (german language) - Françoise CARL	B2	Q1	36	-	-	3
LANG2979-1	<i>German for engineers, part 2</i> - Françoise CARL, ISLV	B2	Q2	24	-	-	2

Power production, transport and distribution

CHIM0664-1	<i>Electrochemical energy conversion and storage</i> (english language) - Nathalie JOB - [15h Labo.]	B2	Q1	15	-	[+]	3
ELEC0041-1	<i>Modelling and design of electromagnetic systems</i> (english language) - Patrick DULAR, Christophe GEUZAINÉ	B2	Q2	30	30	-	5
GENU0018-3	<i>Nuclear Engineering and Nuclear Power Plant Technology</i> - Pierre DEWALLEF (Even years) Prerequisite : MECA0037-1 - Centrales thermiques et cogénération	B2	Q1	30	30	-	5
ELEC0047-1	<i>Electric power systems dynamics, control and stability</i> (english language) - Thierry VAN CUTSEM - [25h Proj.] Prerequisite : ELEC0014-3 - Introduction to electric power and energy systems Corequisite : ELEC0029-2 - Electric power systems analysis	B2	Q1	30	8	[+]	5
ELEC0055-1	<i>Electronic control systems</i> (english language) - Fabrice FREBEL	B2	Q1	30	30	-	5
MECA0033-1	<i>Heat and Material Transfer Modelling</i> - N...	B2		30	30	-	5
ELEC0029-2	<i>Electric power systems analysis</i> (english language) - Thierry VAN CUTSEM - [25h Proj.] Prerequisite : ELEC0014-3 - Introduction to electric power and energy systems	B2	Q2	16	4	[+]	3
ELEC0436-1	<i>Electric Energy Management Systems</i> (english language) - Patricia ROUSSEAUX - [12h Labo., 20h Proj.] Prerequisite : ELEC0014-3 - Introduction to electric power and energy systems	B2	Q1	20	16	[+]	5
ELEC0445-1	<i>High Voltage Direct Current (HVDC) grids</i> (english language) - Patricia ROUSSEAUX	B2	Q2	16	12	-	3

Rational use of energy in buildings and industry

ARCH0117-1	<i>Introduction to building thermals</i> - JeanMarie HAUGLUSTAINE	B2	Q1	15	15	-	3
MECA0034-1	<i>Rational use of energy in buildings</i> - Vincent LEMORT Prerequisite : MECA0006-1 - Machines et systèmes thermiques	B2	Q1	30	30	-	5
ELEN0074-1	<i>Sensors, microsensors and instrumentation</i> (english language) - Philippe VANDERBEMDEN - [20h Labo.]	B2	Q2	30	-	[+]	5
ENVT0026-1	<i>Industry</i> - Part 1 : <i>Tools for a more sustainable industry (product life cycle analysis, best available technologies, sustainable chemistry)</i> - Sandra BELBOOM, Angélique LÉONARD - Part 2 : <i>Rational use of energy in industry</i> - Vincent LEMORT	B2	Q2	15	10	-	5

Energy and mobility

MECA0478-4	<i>Electric, hybrid and non-conventional propulsion systems</i> - Pierre DUYSINX - [6h Labo., 16h Proj.]	B2	Q1	30	8	[+]	5
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Advanced modeling and simulation

MECA0032-1	<i>Flow in turbomachineries</i> (english language) - Olivier LÉONARD - [60h Proj.]	B2	TA	30	30	[+]	5
MECA0124-1	<i>Combustion Modelling</i> - Philippe NGENDAKUMANA	B2	Q1	30	30	-	5
MECA0514-1	<i>Introduction to dynamic modeling of thermal systems</i> - Sylvain QUOILIN (Odd years) Prerequisite : MECA0006-1 - Machines et systèmes thermiques	B2	Q1	15	15	-	3
MECA0515-1	<i>Advanced thermal systems</i> (english language) - Vincent LEMORT Prerequisite : MECA0006-1 - Machines et systèmes thermiques	B2	Q2	15	15	-	3
MATH0461-2	<i>Introduction to numerical optimization</i> (english language) - Quentin LOUVEAUX - [25h Proj.]	B2	Q1	30	20	[+]	5

Optional courses

MECA0018-2	(pas organisé en 2016-2017) <i>Manufacturing processes</i> (english language)	B2	Q2	30	30	-	5
MECA0027-1	<i>Structural and multidisciplinary optimization</i> (english language) - Pierre DUYSINX, Patricia TOSSINGS - [18h Proj.]	B2	Q1	30	12	[+]	5

[...] 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)

Choose one focus from the following : (B1 : 30Cr)

Professional focus in energetics (B1 : 30Cr)

APRI0003-2	<i>Energetics Integrated Project</i> - Pierre DEWALLEF, Vincent LEMORT, Philippe NGENDAKUMANA - [5d FW] Corequisite : MECA0006-1 - Machines et systèmes thermiques MECA0450-3 - Renewable energies MECA0046-1 - Echangeurs de chaleur : aspects réseaux d'échangeurs et U.R.E.	B1	TA	30	80	[+]	8
MECA0037-1	<i>Thermal power stations and cogeneration</i> - Pierre DEWALLEF, Angélique LÉONARD - [12h Proj.] Corequisite : MECA0046-1 - Echangeurs de chaleur : aspects réseaux d'échangeurs et U.R.E. MECA0467-1 - Turbomachines MECA0002-1 - Thermodynamique appliquée et introduction aux machines thermiques	B1	Q2	24	24	[+]	5
MECA0046-1	<i>Heat exchangers : networks and rational use of energy</i> - MarieNoëlle DUMONT - [20h Proj.]	B1	Q2	15	5	[+]	2
MECA0450-3	<i>Renewable energies</i> (english language) - Pierre DEWALLEF - [24h Proj., 1d FW]	B1	Q1	24	12	[+]	5
ELEC0018-1	<i>Energy Market</i> (english language) - Damien ERNST	B1	Q2	45	15	-	5
MECA0041-1	<i>Internal combustion engine</i> - Philippe NGENDAKUMANA - [1,5d FW, 20h Proj.] Corequisite : MECA0002-1 - Thermodynamique appliquée et introduction aux machines thermiques	B1	Q2	30	30	[+]	5

Professional focus in sustainable automotive engineering (B1 : 30Cr)

PROJ0013-1	<i>Innovation project in automotive engineering</i> (english language) - Olivier BRULS, Georges DE PELSEMAEKER, Grigorios DIMITRIADIS, Pierre DUYSINX, Vincent LEMORT - [80h Proj., 1d FW] Corequisite : MECA0492-2 - Vehicle dynamics	B1	Q1	20	-	[+]	8
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	MECA0497-2 - Vehicle performance									
MECA0492-2	<i>Vehicle dynamics</i> (english language) - Pierre DUYSINX Corequisite : MECA0493-2 - Vehicle aerodynamics MECA0494-3 - Vehicle components I MECA0496-2 - Materials for automotive applications MECA0493-2 - Vehicle aerodynamics	B1	Q1	15	10	-				2
MECA0493-2	<i>Vehicle aerodynamics</i> (english language) - Grigorios DIMITRIADIS Corequisite : MECA0496-2 - Materials for automotive applications MECA0494-3 - Vehicle components I MECA0492-2 - Vehicle dynamics	B1	Q1	15	10	-				2
MECA0494-3	<i>Vehicle components I</i> (english language) - Olivier BRULS, Pierre DUYSINX Corequisite : MECA0496-2 - Materials for automotive applications MECA0493-2 - Vehicle aerodynamics MECA0492-2 - Vehicle dynamics	B1	Q1	25	15	-				3
MECA0496-2	<i>Materials for automotive applications</i> (english language) Corequisite : MECA0494-3 - Vehicle components I MECA0493-2 - Vehicle aerodynamics MECA0492-2 - Vehicle dynamics	B1	Q1	15	10	-				2
MECA0497-2	<i>Vehicle performance</i> (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	B1	Q1	25	15	[+]				3
MECA0498-2	<i>Internal combustion engines</i> (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	B1	Q1	25	15	-				3
MECA0499-2	<i>Electric traction motors</i> (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	B1	Q1	15	10	-				2
MECA0500-2	<i>Hybrid electric and fuel cell vehicles</i> (english language) - Pierre DUYSINX, Nathalie JOB Corequisite : MECA0501-1 - Thermal and Electrical Management of vehicles MECA0499-2 - Electric traction motors MECA0498-2 - Internal combustion engines MECA0497-2 - Vehicle performance	B1	Q1	25	15	-				2
MECA0501-1	<i>Thermal and Electrical Management of vehicles</i> (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	B1	Q1	15	10	-				3

Research focus (B1 : 30Cr)

Aimed at students who have taken this focus in 2015-2016.

Additional ECTS Master in electro-mechanical engineering

Optional courses (B0 : 60Cr)

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 : (B0 : 60Cr)

MECA0445-2	<i>Heat transfer</i> (english language) - Pierre DEWALLEF, Vincent TERRAPON - [4h Labo., 9h Proj.]	B0	Q2	30	26	[+]	5
MECA0012-6	<i>Solid mechanics</i> - Laurent DUCHENE - [15h Proj.]	B0	Q2	30	30	[+]	5
ELEC0052-2	<i>Analysis and Design of Electrical Measuring Systems</i> - Philippe VANDERBEMDEN - [24h Labo.]	B0	Q1	30	6	[+]	5
MECA0025-3	<i>Fluid Mechanics</i> - Eric DELHEZ - [30h Proj.]	B0	Q2	30	30	[+]	5
MECA0036-2	<i>Finite Element Method</i> (english language) - JeanPhilippe PONTHOT - [40h Proj.]	B0	Q2	30	30	[+]	5
MECA0155-2	<i>Dynamics of Mechanical Systems</i> - JeanClaude GOLINVAL - [5h Labo., 10h Proj.]	B0	Q1	30	30	[+]	5
PHYS0904-4	<i>Physics of materials</i> - - Suppl : Luc COURARD, Anne HABRAKEN, Anne MERTENS - [1d FW]	B0	Q2	30	30	[+]	5
MATH0006-3	<i>Introduction to numerical analysis</i> (english language) - Quentin LOUVEAUX	B0	Q1	20	20	-	4
MECA0001-2	<i>Mechanics of materials</i> - JeanPierre JASPART - [2h Labo., 12h Proj.]	B0	Q1	30	28	[+]	5
LANG0039-2	<i>English 2</i> (english language) - Christine FILOT, ISLV - [20h Proj.]	B0	TA	-	30	[+]	3
[...]	Choose maximum 13 credits to complete the curriculum						