Cycle view of the study programme

		Bl	Or	Th	Pr	Au	Cr
Compulsory courses (B1 : 60Cr, B2 : 30Cr)							
MECA0037-1	*Thermal power stations and cogeneration* - Pierre DEWALLEF, Angélique LÉONARD - [12h Proj.] **Corequisite :** MECA0467-1 - Turbomachines MECA0046-1 - Echangeurs de chaleur	B1	Q2	24	24	[+]	**5**
MECA0046-1	*Heat exchangers* *- Heat exchangers networks and rational use of energy* - MarieNoëlle DUMONT - [20h Proj.] *- Fundamental and constructive aspects* - Philippe NGENDAKUMANA - [16h Proj.]	B1	 15 15	 15 15	 [+] [+]		**5**
MECA0450-3	*Renewable energies* (english language) - Pierre DEWALLEF - [24h Proj., 1d FW]	B1	Q1	24	12	[+]	**5**
CHIM0071-4	*Reduction of pollutants from combustion* - Angélique LÉONARD - [1d FW]	B1	Q1	30	-	[+]	**3**
MECA0006-1	*Production system of coldness and low temperature heat* - Vincent LEMORT - [4h Proj.] **Corequisite :** MECA0046-1 - Echangeurs de chaleur	B1	Q1	30	30	[+]	**5**
MECA0041-1	*Internal combustion engine* - Philippe NGENDAKUMANA - [1,5d FW, 20h Proj.]	B1	Q2	30	30	[+]	**5**
APRI0003-2	*Energetics Integrated Project* - COLLÉGIALITÉ, Philippe NGENDAKUMANA - [5h FW] **Corequisite :** MECA0046-1 - Echangeurs de chaleur MECA0450-3 - Renewable energies MECA0006-1 - Systèmes de production de froid et de chaleur basse température *Notice* : If the president of the cycle's panel agrees, in particular regarding the technical content, the master's integrated project can be part of an interdisciplinary project (e.g. project engineer, Eurobot, Eco-Shell Marathon, etc.). It is possible to have done the project between the third year of the bachelor's degree and the second year of the master's.	B1	TA	30	80	[+]	**8**
MECA0462-2	*Materials selection* (english language) - Jacqueline LECOMTEBECKERS, Davide RUFFONI - [30h Proj., 1d FW]	B1	Q1	30	30	[+]	**5**
ELEC0018-1	*Energy Market* (english language) - Damien ERNST	B1	Q2	45	15	-	**5**
ELEC0014-3	*Introduction to electric power and energy systems* (english language) - Thierry VAN CUTSEM - [1d FW]	B1	Q1	28	12	[+]	**4**
MECA0467-1	*Turbomachines* - Olivier LÉONARD	B1	Q2	30	30	-	**5**
SYST0003-1	*Linear control systems* (english language) - Guillaume DRION - [6h Labo.]	B1	Q1	30	30	[+]	**5**
ATFE2003-1	*Final work (including an internship or a placement in a research centre under the supervision of the teacher responsible for the final work and including an introduction to research methodology)* - COLLÉGIALITÉ	B2	TA	-	-	-	**25**
GEST3162-1	*Principles of management* (english language) - Michael GHILISSEN, François PICHAULT, Thierry PIRONET, Didier VAN CAILLIE	B2	Q1	25	25	-	**5**
Optional courses (B2 : 30Cr)							
Choose one focus from the following : (B2 : 30Cr)							
Research Focus (B2 : 30Cr)							
	Notice : l'étudiant qui, dans le cadre de ses études de bachelier, a déjà suivi un ou plusieurs des cours au choix repris dans la liste ci-dessous ne peut les choisir à nouveau						

Choose courses totalling 30 ECTS out of the following :

Compulsory Training

[...] One compulsory internship from :

ASTG9003-1	*Observation placement* - Pierre DEWALLEF **Corequisite :** GEST3162-1 - Principles of management	B2	TA	-	-	-	**3**
ASTG9004-1	*Traineeship* - Pierre DEWALLEF **Corequisite :** ATFE2003-1 - Travail de fin d'études (en ce compris un séjour en entreprise ou en centre de recherches sous la responsabilité du promoteur du TFE ainsi qu'une introduction à la méthodologie de la recherche) GEST3162-1 - Principles of management	B2	TA	-	-	-	**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	B2	Q1	36	-	-	**3**
LANG2978-1	*Dutch for engineer, part 2* - Claudine COLIN	B2	Q2	24	-	-	**2**
LANG1958-1	*German for engineer, Part 1* (german language) - Françoise CARL	B2	Q1	36	-	-	**3**
LANG2979-1	*German for engineers, part 2* - Françoise CARL, ISLV	B2	Q2	24	-	-	**2**

Optional courses

MECA0444-1	*Mechanical design* - JeanFrançois DEBONGNIE	B2	Q1	30	30	-	**5**
MECA0027-1	*Structural and multidisciplinary optimization* - 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 Jury president)

Power production, transport and distribution

CHIM0664-1	*Electrochemical energy conversion and storage* (english language) - Nathalie JOB	B2	Q1	15	15	-	**3**
ELEC0041-1	*Modelling and design of electromagnetic systems* (english language) - Patrick DULAR, Christophe GEUZAINE	B2	Q2	30	30	-	**5**
GENU0018-3	*Nuclear Engineering and Nuclear Power Plant Technology* - Pierre DEWALLEF **Prerequisite :** MECA0037-1 - Centrales thermiques et cogénération	B2	Q1	15	15	-	**3**
ELEC0047-1	*Electric power systems dynamics, control and stability* (english language) - Thierry VAN CUTSEM - [25h Labo., 20h Proj.] **Prerequisite :** ELEC0014-3 - Introduction to electric power and energy systems **Corequisite :** ELEC0029-2 - Electric power systems analysis	B2	Q1	25	4	[+]	**5**
ELEC0055-1	*Electronic control systems* (english language) - Fabrice FREBEL, Christophe GEUZAINE	B2	Q1	30	30	-	**5**
MECA0033-1	*Heat and Material Transfer Modelling* - N...	B2		30	30	-	**5**
ELEC0029-2	*Electric Power systems analysis* (english language) - Thierry VAN CUTSEM - [20h Proj.] **Prerequisite :** ELEC0014-3 - Introduction to electric power and energy systems	B2	Q2	16	8	[+]	**3**

ELEC0436-1	*Electric Energy Management Systems* (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	*High Voltage Direct Current (HVDC) grids* (english language) - Patricia ROUSSEAUX	B2	Q2	16	12	-	**3**

Rational use of energy in buildings and industry

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

Energy and mobility

MECA0478-4	*Electric, hybrid and non-conventional propulsion systems* - Pierre DUYSINX - [6h Labo., 16h Proj.]	B2	Q1	30	8	[+]	**5**
MECA0501-1	*Thermal and Electrical Management of vehicles* (english language) - Vincent LEMORT	B2	Q1	15	10	-	**2**
MECA0004-3	*Vehicles performances ans behaviour* - Pierre DUYSINX - [6h Labo., 12h Proj.]	B2	Q2	30	12	[+]	**5**

Advanced modeling and simulation

MECA0032-1	*Flow in turbomachineries* (english language) - Olivier LÉONARD - [60h Proj.]	B2	TA	30	30	[+]	**5**
MECA0124-1	*Combustion Modelling* - Philippe NGENDAKUMANA	B2	Q1	30	30	-	**5**
MECA0514-1	*Introduction to dynamic modeling of thermal systems* - Sylvain QUOILIN **Prerequisite :** MECA0006-1 - Systèmes de production de froid et de chaleur basse température	B2	Q1	15	15	-	**3**
MECA0515-1	*High tech machines and thermal systems* - Vincent LEMORT **Prerequisite :** MECA0006-1 - Systèmes de production de froid et de chaleur basse température	B2	Q1	15	15	-	**3**
MATH0461-2	*Introduction to numerical optimization* (english language) - Quentin LOUVEAUX - [25h Proj.]	B2	Q1	30	20	[+]	**5**

Professional focus in sustainable automotive engineering (B2 : 30Cr)

Notice : students who have already taken a course equivalent to one of the courses in this focus¿ programme, within the framework of block 1 of their master¿s, is required to replace it with one or more courses chosen from among the courses of the programme at the faculty; this course must be approved by the president of the cycle jury

ASTG0117-1	*Integration internship* - Pierre DEWALLEF **Corequisite :** ATFE2003-1 - Travail de fin d'études (en ce compris un séjour en entreprise ou en centre de recherches sous la responsabilité du promoteur du TFE ainsi qu'une introduction à la méthodologie de la recherche) GEST3162-1 - Principles of management	B2	TA	-	-	-	**5**

Module 1 : Vehicle dynamics and safety

MECA0492-2	*Vehicle dynamics* (english language) - Pierre DUYSINX **Corequisite :** MECA0493-2 - Vehicle aerodynamics MECA0494-3 - Driveline and braking systems MECA0495-1 - Introduction to vehicle safety and body structure design MECA0496-2 - Materials for automotive applications	B2	Q1	25	15	-	**3**
MECA0493-2	*Vehicle aerodynamics* (english language) - - Suppl : Pierre DUYSINX, Vincent TERRAPON **Corequisite :** MECA0492-2 - Vehicle dynamics MECA0494-3 - Driveline and braking systems MECA0495-1 - Introduction to vehicle safety and body structure design MECA0496-2 - Materials for automotive applications	B2	Q1	15	10	-	**2**
MECA0494-3	*Driveline and braking systems* (english language) - Olivier BRULS, Pierre DUYSINX **Corequisite :** MECA0492-2 - Vehicle dynamics MECA0493-2 - Vehicle aerodynamics MECA0495-1 - Introduction to vehicle safety and body structure design MECA0496-2 - Materials for automotive applications	B2	Q1	25	15	-	**3**
MECA0495-1	*Introduction to vehicle safety and body structure design* (english language) - Pierre DUYSINX, Ludovic NOELS **Corequisite :** MECA0492-2 - Vehicle dynamics MECA0493-2 - Vehicle aerodynamics MECA0494-3 - Driveline and braking systems MECA0496-2 - Materials for automotive applications	B2	Q1	15	10	-	**2**
MECA0496-2	*Materials for automotive applications* (english language) - Jacqueline LECOMTEBECKERS, Ahmed RASSILI **Corequisite :** MECA0492-2 - Vehicle dynamics MECA0493-2 - Vehicle aerodynamics MECA0494-3 - Driveline and braking systems MECA0495-1 - Introduction to vehicle safety and body structure design	B2	Q1	25	15	-	**3**

Module 2 : Engine and electric propulsion systems

MECA0497-2	*Vehicle performance* (english language) - Pierre DUYSINX **Corequisite :** MECA0498-2 - Internal combustion engines MECA0499-2 - Electric traction motors MECA0500-2 - Hybrid electric and fuel cell vehicles MECA0501-1 - Thermal and Electrical Management of vehicles	B2	Q1	15	10	-	**2**
MECA0498-2	*Internal combustion engines* (english language) - Philippe NGENDAKUMANA **Corequisite :** MECA0497-2 - Vehicle performance MECA0499-2 - Electric traction motors MECA0500-2 - Hybrid electric and fuel cell vehicles MECA0501-1 - Thermal and Electrical Management of vehicles	B2	Q1	25	15	-	**3**
MECA0499-2	*Electric traction motors* (english language) - Johan GYSELINCK **Corequisite :** MECA0497-2 - Vehicle performance MECA0498-2 - Internal combustion engines MECA0500-2 - Hybrid electric and fuel cell vehicles MECA0501-1 - Thermal and Electrical Management of vehicles	B2	Q1	15	10	-	**2**
MECA0500-2	*Hybrid electric and fuel cell vehicles* (english language) - Pierre DUYSINX, Nathalie JOB **Corequisite :**	B2	Q1	25	15	-	**3**

MECA0497-2 - Vehicle performance
MECA0498-2 - Internal combustion engines
MECA0499-2 - Electric traction motors
MECA0501-1 - Thermal and Electrical Management of vehicles

MECA0501-1	*Thermal and Electrical Management of vehicles* (english language) - Vincent LEMORT **Corequisite :** MECA0497-2 - Vehicle performance MECA0498-2 - Internal combustion engines MECA0499-2 - Electric traction motors MECA0500-2 - Hybrid electric and fuel cell vehicles	B2	Q1	15	10	-	**2**

Programme transitoire à destination des étudiants ayant réussi leur master 1 de "Master en ingénieur civil électromécanicien, à finalité spécialisée en technologies durables en automobiles" en 2014-2015

Optional courses (B1 : 30Cr)

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

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

Notice : students who have already taken a course equivalent to one of the courses in this focus¿ programme, within the framework of block 1 of their master¿s, is required to replace it with one or more courses chosen from among the courses of the programme at the faculty; this course must be approved by the president of the cycle jury

ASTG0117-1	*Integration internship* - Pierre DEWALLEF	B1	TA	-	-	-	**5**
	Module 1 : Vehicle dynamics and safety						
MECA0492-2	*Vehicle dynamics* (english language) - Pierre DUYSINX	B1	Q1	25	15	-	**3**
MECA0493-2	*Vehicle aerodynamics* (english language) - - Suppl : Pierre DUYSINX, Vincent TERRAPON	B1	Q1	15	10	-	**2**
MECA0494-3	*Driveline and braking systems* (english language) - Olivier BRULS, Pierre DUYSINX	B1	Q1	25	15	-	**3**
MECA0495-1	*Introduction to vehicle safety and body structure design* (english language) - Pierre DUYSINX, Ludovic NOELS	B1	Q1	15	10	-	**2**
MECA0496-2	*Materials for automotive applications* (english language) - Jacqueline LECOMTEBECKERS, Ahmed RASSILI	B1	Q1	25	15	-	**3**
	Module 2 : Engine and electric propulsion systems						
MECA0497-2	*Vehicle performance* (english language) - Pierre DUYSINX	B1	Q1	15	10	-	**2**
MECA0498-2	*Internal combustion engines* (english language) - Philippe NGENDAKUMANA	B1	Q1	25	15	-	**3**
MECA0499-2	*Electric traction motors* (english language) - Johan GYSELINCK	B1	Q1	15	10	-	**2**
MECA0500-2	*Hybrid electric and fuel cell vehicles* (english language) - Pierre DUYSINX, Nathalie JOB	B1	Q1	25	15	-	**3**
MECA0501-1	*Thermal and Electrical Management of vehicles* (english language) - Vincent LEMORT	B1	Q1	15	10	-	**2**

Compulsory courses (B1 : 30Cr)

ATFE2003-1	*Final work (including an internship or a placement in a research centre under the supervision of the teacher responsible for the final work and including an introduction to research methodology)* - COLLÉGIALITÉ	B1	TA	-	-	-	**25**

GEST3162-1	*Principles of management* (english language) - Michael GHILISSEN, François PICHAULT, Thierry PIRONET, Didier VAN CAILLIE	B1	Q1	25	25	-	**5**

Programme transitoire à destination des étudiants ayant réussi leur master 1 de "Master en ingénieur civil électromécanicien, à finalité approfondie" en 2014-2015

Optional courses (B1 : 30Cr)

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

Research Focus (B1 : 30Cr)

Notice : l'étudiant qui, dans le cadre de ses études de bachelier, a déjà suivi un ou plusieurs des cours au choix repris dans la liste ci-dessous ne peut les choisir à nouveau

Choose courses totalling 30 ECTS out of the following : (B1 : 30Cr)

Compulsory Training

[...] Choose one observation internship or one traineeship

ASTG9003-1	*Observation placement* - Pierre DEWALLEF	B1	TA	-	-	-	**3**
ASTG9004-1	*Traineeship* - Pierre DEWALLEF	B1	TA	-	-	-	**5**

Notice : Students are not allowed to cumulate the two types of placement. If they choose the observation placement, they must complete the number of credits through extra courses in the research focus.

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	B1	Q1	36	-	-	**3**
LANG2978-1	*Dutch for engineer, part 2* - Claudine COLIN	B1	Q2	24	-	-	**2**
LANG1958-1	*German for engineer, Part 1* (german language) - Françoise CARL	B1	Q1	36	-	-	**3**
LANG2979-1	*German for engineers, part 2* - Françoise CARL, ISLV	B1	Q2	24	-	-	**2**

Optional courses

MECA0444-1	*Mechanical design* - JeanFrançois DEBONGNIE	B1	Q1	30	30	-	**5**
MECA0027-1	*Structural and multidisciplinary optimization* - Pierre DUYSINX, Patricia TOSSINGS - [18h Proj.]	B1	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 Jury president)

Power production, transport and distribution

CHIM0664-1	*Electrochemical energy conversion and storage* (english language) - Nathalie JOB	B1	Q1	15	15	-	**3**
ELEC0041-1	*Modelling and design of electromagnetic systems* (english language) - Patrick DULAR, Christophe GEUZAINE	B1	Q2	30	30	-	**5**
GENU0018-3	*Nuclear Engineering and Nuclear Power Plant Technology* - Pierre DEWALLEF	B1	Q1	15	15	-	**3**
ELEC0047-1	*Electric power systems dynamics, control and stability* (english language) - Thierry VAN CUTSEM - [25h Labo., 20h Proj.]	B1	Q1	25	4	[+]	**5**

ELEC0055-1	*Electronic control systems* (english language) - Fabrice FREBEL, Christophe GEUZAINE	B1	Q1	30	30	-	**5**
MECA0033-1	*Heat and Material Transfer Modelling* - N...	B1		30	30	-	**5**
ELEC0436-1	*Electric Energy Management Systems* (english language) - Patricia ROUSSEAUX - [12h Labo., 20h Proj.]	B1	Q1	20	16	[+]	**5**
ELEC0445-1	*High Voltage Direct Current (HVDC) grids* (english language) - Patricia ROUSSEAUX	B1	Q2	16	12	-	**3**
Rational use of energy in buildings and industry							
ARCH0117-1	*Introduction to building thermals* - JeanMarie HAUGLUSTAINE	B1	Q1	15	15	-	**3**
MECA0034-1	*Rational use of energy in buildings* - Vincent LEMORT	B1	Q1	30	30	-	**5**
ELEN0074-1	*Sensors, microsensors and instrumentation* (english language) - Philippe VANDERBEMDEN - [20h Labo.]	B1	Q2	30	-	[+]	**5**
ENVT0026-1	*Industry* *- Part 1 : Tools for a more sustainable industry (product life cycle analysis, best available technologies, sustainable chemistry)* - Sandra BELBOOM, Angélique LÉONARD *- Part 2 : Rational use of energy in industry* - Vincent LEMORT	B1	Q2 15 15	 10 10	 - -		**5**
Energy and mobility							
MECA0478-4	*Electric, hybrid and non-conventional propulsion systems* - Pierre DUYSINX - [6h Labo., 16h Proj.]	B1	Q1	30	8	[+]	**5**
MECA0501-1	*Thermal and Electrical Management of vehicles* (english language) - Vincent LEMORT	B1	Q1	15	10	-	**2**
MECA0004-3	*Vehicles performances ans behaviour* - Pierre DUYSINX - [6h Labo., 12h Proj.]	B1	Q2	30	12	[+]	**5**
Advanced modeling and simulation							
MECA0032-1	*Flow in turbomachineries* (english language) - Olivier LÉONARD - [60h Proj.]	B1	TA	30	30	[+]	**5**
MECA0124-1	*Combustion Modelling* - Philippe NGENDAKUMANA	B1	Q1	30	30	-	**5**
MECA0514-1	*Introduction to dynamic modeling of thermal systems* - Sylvain QUOILIN	B1	Q1	15	15	-	**3**
MECA0515-1	*High tech machines and thermal systems* - Vincent LEMORT	B1	Q1	15	15	-	**3**
MATH0461-2	*Introduction to numerical optimization* (english language) - Quentin LOUVEAUX - [25h Proj.]	B1	Q1	30	20	[+]	**5**
Compulsory courses (B1 : 30Cr)							
ATFE2003-1	*Final work (including an internship or a placement in a research centre under the supervision of the teacher responsible for the final work and including an introduction to research methodology)* - COLLÉGIALITÉ	B1	TA	-	-	-	**25**
GEST3162-1	*Principles of management* (english language) - Michael GHILISSEN, François PICHAULT, Thierry PIRONET, Didier VAN CAILLIE	B1	Q1	25	25	-	**5**