Two-Year Master Program (120 ECTS)

First Year

Compulsory courses

MECA0037-1	*Thermic and co-generation power stations* - N... - Suppl : Jean SNOECK	30	30	-	**5**
MECA0046-1	*Heat exchangers*				**5**
	- *Heat exchangers networks and rational use of energy* - Georges HEYEN	15	15	-	
	- *Fundamental and constructive aspects* - Philippe NGENDAKUMANA	15	15	-	
MECA0450-2	*Renewable energies* - Vincent LEMORT, N... - Suppl : Jean SNOECK	15	15	-	**3**
CHIM0080-2	*Energy carriers and sustainable development* - Angélique LÉONARD	20	10	-	**3**
CHIM0071-3	*Reduction of pollutants from combustion* - Angélique LÉONARD	30	-	-	**3**
MECA0006-1	*Production of cold and low-level heat* - Vincent LEMORT	30	30	-	**5**
MECA0045-1	*Thermofluid Quantity Measurement* - Philippe NGENDAKUMANA	30	30	-	**3**
MECA0041-1	*Internal Combustion Engines* - Philippe NGENDAKUMANA - [1,5d FW]	30	30	[+]	**5**
APRI0003-1	*Integrated project on energetics* - COLLÉGIALITÉ - [5d FW]	-	60	[+]	**5**
MECA0462-2	*Materials selection* - Jacqueline LECOMTE#BECKERS - [1d FW]	30	30	[+]	**5**
ELEC0014-3	*Electric Energy Transmission and Distribution* - Jean-Louis LILIEN - [2,5d FW]	30	15	[+]	**4**
ELEC0029-2	*Analysis and operation of electric energy systems* - Thierry VAN CUTSEM	30	30	-	**4**
MECA0467-1	*Turbomachines* - Olivier LÉONARD	30	30	-	**5**
SYST0003-1	*Linear control systems* (english language) - Eric BULLINGER, Rodolphe SEPULCHRE	30	30	-	**5**

Notice : Students who have, in their BAC studies, have already taken one or more compulsory courses in this Master's programme are obliged to replace them by other courses on the Faculty's programme; this choice must be approved by the President of the cycle's Jury.

Second year

Compulsory courses

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	-	-	-	**25**

Optional courses

Choose one of the following courses :

[...]	the courses of the University of Liege				
[...]	the list below.				
ECON0207-1	*Industrial Economics* - Axel GAUTIER	30	15	-	**5**
LOGI0011-1	*Supply Chain Management* (english language) - Sabine LIMBOURG	45	-	-	**5**
LANG1957-1	*Dutch Engineering* (dutch language) - Claudine COLIN	60	-	-	**5**
LANG1958-1	*German Engineering* (german language) - Françoise CARL	60	-	-	**5**

In any case, this course must have the approval of the cycle's Jury President.

Choose one focus from the following :

Research Focus

Compulsory courses

ELEC0018-1	*Energy market* - Yvan HELLA	45	15	-	**5**

Optional courses

Choose courses totaling 25 ECTS from the optional courses list. With the approval of the Jury's President, students can choose 5 ECTS from the courses list of other Masters of the Faculty of Applied Sciences.

Equipment and energetic components

CHIM0039-1	*Chemical Upgrading of Coal* - Jean-Paul PIRARD	15	-	-	**2**
CHIM0664-1	*Combustible batteries and micro-batteries* - Nathalie JOB	15	15	-	**3**
ELEC0039-1	*Network Electromechanical Performance* - Jean-Louis LILIEN	30	30	-	**5**
ELEC0041-1	*Modeling and design of electromagnetic systems* - Patrick DULAR, Christophe GEUZAINE	30	30	-	**5**
ELEN0074-1	*Sensors, microsensors and instrumentation* - Philippe VANDERBEMDEN	30	30	-	**5**
GENU0018-2	(pas organisé en 2010-2011) *Nuclear Engineering and Nuclear Power Plant Technology*	30	30	-	**5**
MECA0032-1	*Flow in Turbomachines* - Olivier LÉONARD	30	30	-	**5**
MECA0033-1	*Heat and Material Transfer Modelling* - Michel HOGGE	30	30	-	**5**
MECA0124-1	*Combustion Modelling* - Philippe NGENDAKUMANA	30	30	-	**5**

Energy Systems

ARCH0117-1	*Introduction to building thermals* - Jean-Marie HAUGLUSTAINE	15	15	-	**3**
ELEC0055-1	*Electronic control systems* - Christophe GEUZAINE	30	30	-	**5**
ELEC0047-1	*Dynamics of electric energy systems* - Thierry VAN CUTSEM, Thierry VAN CUTSEM	30	30	-	**5**
ELEC0436-1	*Energy Management Systems and optimal functions for electric power systems* - Patricia ROUSSEAUX	30	30	-	**5**
GCIV2057-2	*Hydropower exploitation (part)* - Sébastien ERPICUM, Olivier LÉONARD, Michel PIROTTON	15	15	-	**5**
MATH0461-1	*Introduction to numerical optimization* (english language) - Quentin LOUVEAUX	30	30	-	**5**
MECA0034-1	*Rational Use of Energy, Air-conditioning in buildings and vehicles* - Vincent LEMORT	30	30	-	**5**
MECA0468-1	*Energy system disgnosis* - Georges HEYEN, Olivier LÉONARD, Jean-Louis LILIEN	30	30	-	**5**
MECA0478-1	*Electric, hybrid and non-conventional propulsion systems* - Pierre DUYSINX	30	30	-	**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)				

Notice : Students who have, in their BAC studies, already taken one or more option courses found in this list must not take them again.

Professional focus in management

Compulsory courses

GEST3001-1	*People management and organisation* - Jocelyne ROBERT	24	24	-	**4**
GEST3002-1	*Human Resources* - Jocelyne ROBERT	24	-	-	**2**
GEST3003-1	*Competitive strategy in the marketplace* - Michael GHILISSEN	16	16	-	**3**
GEST3004-1	*Marketing (operations and management)* - Michael GHILISSEN	16	16	-	**3**
GEST3005-2	*Accountancy and Finance* - Jacques BERWART	24	24	-	**4**
GEST3006-1	*Operations and supply chain management I* - Yasemin ARDA - Suppl : Robert NONDONFAZ	16	16	-	**3**
GSTG3001-1	*Business plan* - COLLÉGIALITÉ	-	30	-	**4**
GSTG3002-1	*Functional analysis of a company* - COLLÉGIALITÉ - [30h Internship]	-	-	[+]	**4**

Optional courses

Choose one of the following courses :

GEST3010-1	*Operations and supply chain management II* - Sabine LIMBOURG	16	16	-	**3**
GEST3011-2	*ICT for Business* - Alain DUBOIS	16	16	-	**3**
GEST3012-1	*Financial and actuarial modelling* - Louis ESCH	16	16	-	**3**

Professional focus in sustainable car technologies

Compulsory courses

Module 1 : Vehicle dynamics and safety

MECA0491-1	*Technical english* (english language) - FOREM	15	15	-	**2**
MECA0492-1	*Vehicle dynamics* (english language) - Pierre DUYSINX	15	25	-	**3**
MECA0493-1	*Vehicle aerodynamics* (english language) - Grigorios DIMITRIADIS	15	25	-	**3**

MECA0494-1	*Driveline and braking systems* (english language) - Jean-Luc BOZET, Olivier BRULS, Pierre DUYSINX	15	15	-	**2**
MECA0495-1	*Introduction to vehicle safety* (english language) - Pierre DUYSINX, Ludovic NOELS	15	10	-	**2**
MECA0496-1	*Materials for automotive applications* (english language) - Jacqueline LECOMTE#BECKERS, Ahmed RASSILI	15	25	-	**3**
Module 2 : Engine and electric propulsion systems					
MECA0497-1	*Vehicle performance* (english language) - Pierre DUYSINX	15	15	-	**2**
MECA0498-1	*Internal combustion enignes* (english language) - Philippe NGENDAKUMANA	30	30	-	**5**
MECA0499-1	*Electric traction motors* (english language) - Johan GYSELINCK	15	25	-	**3**
MECA0500-1	*Hybrid electric and fuel cell vehicles* (english language) - Pierre DUYSINX, Nathalie JOB	15	25	-	**3**
MECA0501-1	*Control Systems for Automotive powertrains* (english language) - Pierre DUYSINX	15	15	-	**2**

Adjusted programme for student of the Bachelors in Civil Engineering who have not taken the "Mechanics" or "Electricity and Electronics" option

Students studying for the Bachelors in Civil Engineering who have not chosen the appropriate option :

* must take all the so-called "prerequisite" courses hereafter, if they were not taken during the 1st cycle. These courses must be taken during the 1st year of the masters and some 1st-year compulsory courses must be rolled over to the 2nd year.
* must subsequently reduce the number of courses they choose to take in the 2nd year of the masters. If all the "prerequisite" courses must be taken, it will be impossible for them to choose which courses they take.
* cannot choose the professional "management" focus.

The program adapted by these students has to receive the preliminary agreement of the Jury.

Compulsory prerequisites

ELEC0431-1	*Electromagnetic energy transformation* - Christophe GEUZAINE	30	30	-	**5**
ELEC0053-2	*Electric circuits* - Patricia ROUSSEAUX	30	30	-	**5**
MECA0445-1	*Transfers of heat and matter* - Michel HOGGE	30	30	-	**5**
MECA0012-5	*Mechanics of materials I* - Jean-Pierre JASPART	30	30	-	**5**
MECA0002-1	*Applied Thermodynamics and Introduction to Heat Engines* - Olivier LÉONARD	30	30	-	**5**
ELEC0052-1	*Analysis and Design of Electrical Measuring Systems* - Philippe VANDERBEMDEN	30	30	-	**5**