Master in Electro-mechanical Engineering, professional focus in sustainable car technologies

First Year

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

		Or	Th	Pr	Au	Cr
ELEC0431-2	*Electromagnetic energy conversion* (english language) - Christophe GEUZAINE - [15h Labo.]	Q2	30	15	[+]	**5**
ELEC0053-2	*Electric circuits* - Patricia ROUSSEAUX	Q2	30	30	-	**5**
MECA0445-2	*Heat transfer* - Pierre DEWALLEF, Vincent TERRAPON - [4h Labo., 9h Proj.]	Q2	30	26	[+]	**5**
MECA0012-6	*Solid mechanics* - Laurent DUCHENE - [15h Proj.]	Q2	30	30	[+]	**5**
MECA0002-1	*Applied Thermodynamics and Introduction to Heat Engines* - Olivier LÉONARD	Q1	30	30	-	**5**
ELEC0052-1	*Analysis and Design of Electrical Measuring Systems* - Philippe VANDERBEMDEN	Q1	30	30	-	**5**

Compulsory courses

MECA0037-1	*Thermic and co-generation power stations* - Pierre DEWALLEF, Angélique LÉONARD	Q2	30	30	-	**5**
MECA0046-1	*Heat exchangers*	Q1				**5**
	- *Heat exchangers networks and rational use of energy* - MarieNoëlle DUMONT	15	15	-		
	- *Fundamental and constructive aspects* - Philippe NGENDAKUMANA	15	15	-		
MECA0450-3	*Renewable energies* - Pierre DEWALLEF	Q1	30	30	-	**5**
CHIM0071-4	*Reduction of pollutants from combustion* - Angélique LÉONARD - [1d FW]	Q1	30	-	[+]	**3**
MECA0006-1	*Production systems of cold and heat* - Vincent LEMORT	Q1	30	30	-	**5**
MECA0041-1	*Internal Combustion Engines* - Philippe NGENDAKUMANA - [1,5d FW]	Q2	30	30	[+]	**5**
APRI0003-2	*Integrated project on energetics* - COLLÉGIALITÉ - [5h FW]	TA	30	90	[+]	**9**
	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.					
MECA0462-2	*Materials selection* (english language) - Jacqueline LECOMTEBECKERS, Davide RUFFONI - [1d FW]	Q1	30	30	[+]	**5**
ELEC0014-3	*Electric Energy Transmission and Distribution* - JeanLouis LILIEN - [2,5d FW]	Q1	30	15	[+]	**4**
ELEC0029-2	*Electric power systems analysis and operation* (english language) - Thierry VAN CUTSEM	Q2	30	30	-	**4**
MECA0467-1	*Turbomachines* - Olivier LÉONARD		30	30	-	**5**
SYST0003-1	*Linear control systems* (english language) - Rodolphe SEPULCHRE - Suppl : Raphaël FONTENEAU	Q1	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*		-	-	-	**25**

the supervision of the teacher responsible for the final work and including an introduction to research methodology) - COLLÉGIALITÉ

Optional courses

Choose one of the following courses :

[...]	the courses of the University of Liege					
[...]	the list below.					
LANG1957-1	*Dutch for Engeneering Students* (dutch language) - Claudine COLIN	TA	60	-	-	**5**
LANG1958-1	*German for Engineering Students* (german language) - Françoise CARL	TA	60	-	-	**5**

Compulsory courses

Module 1 : Vehicle dynamics and safety

MECA0492-2	*Vehicle dynamics* (english language) - Pierre DUYSINX	Q1	30	20	-	**4**
MECA0493-2	*Vehicle aerodynamics* (english language) - Grigorios DIMITRIADIS	Q1	15	10	-	**2**
MECA0494-3	*Driveline and braking systems* (english language) - JeanLuc BOZET, Olivier BRULS, Pierre DUYSINX	Q1	30	20	-	**4**
MECA0495-1	*Introduction to vehicle safety and body structure design* (english language) - Mustapha BELHABIB, Pierre DUYSINX, Ludovic NOELS	Q1	15	10	-	**2**
MECA0496-2	*Materials for automotive applications* (english language) - Jacqueline LECOMTEBECKERS, Ahmed RASSILI	Q1	30	20	-	**4**

Module 2 : Engine and electric propulsion systems

MECA0497-2	*Vehicle performance* (english language) - Mustapha BELHABIB, Pierre DUYSINX	Q1	15	10	-	**2**
MECA0498-2	*Internal combustion enignes* (english language) - Philippe NGENDAKUMANA	Q1	30	20	-	**4**

Notice : students who have already taken the course MECA0041-1 in the 1st Master have to remplace the course MECA0498-1 by another course, with the approval of the cycle's Jury President.

MECA0499-2	*Electric traction motors* (english language) - Johan GYSELINCK		15	10	-	**2**
MECA0500-2	*Hybrid electric and fuel cell vehicles* (english language) - Pierre DUYSINX, Nathalie JOB	Q1	30	20	-	**4**
MECA0501-1	*Thermal and Electrical Management of vehicles* (english language) - Vincent LEMORT		15	10	-	**2**

Notice : Students who, during the 1st year of the master programme, have already followed a course that is equivalent to one of the courses offered in this specialisation, must substitute it with one or several courses chosen among the faculty's offering; these courses must be approved by the president of the panel for master studies.