Université de Liège

Study programmes 2010-2011
Faculty of Applied Sciences
Master in Mechanical Engineering

Two-Year Master Program (120 ECTS)

First Year

Compulsory courses

MECA0023-1	*Inelastic behavior of solids* - Jean-Philippe PONTHOT	30	30	-	**5**
MECA0475-1	*Integrated design* - Jean-Luc BOZET	20	40	-	**5**
APRI0005-1	*Integrated mechanical project* - COLLÉGIALITÉ, Pierre DUYSINX - [5d FW]	-	60	[+]	**5**
MECA0444-1	*Mechanical design* - Jean-François DEBONGNIE	30	30	-	**5**
MECA0038-1	*Measurement uncertainties and dimensional metrology* - Maarten ARNST	30	30	-	**5**
MECA0474-1	*CAD in mechanical engineering* - Eric BÉCHET, Eric BÉCHET	30	30	-	**5**
MECA0069-1	*Series Production Methods* - Jean-François DEBONGNIE	30	30	-	**5**
MECA0004-1	*Vehicle performance and behaviour* - Pierre DUYSINX	30	30	-	**5**
PHYS0904-4	*Physics of materials* - Jacqueline LECOMTE#BECKERS - [1d FW]	30	30	[+]	**5**
MECA0462-2	*Materials selection* - Jacqueline LECOMTE#BECKERS - [1d FW]	30	30	[+]	**5**
MECA0029-1	*Mechanical Vibrations* - Jean-Claude GOLINVAL	30	30	-	**5**
MECA0467-1	*Turbomachines* - Olivier LÉONARD	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 following list of option courses; this choice must be approved by the President of the cycle's Jury.

List of option courses

MATH0461-1	*Introduction to numerical optimization* (english language) - Quentin LOUVEAUX	30	30	-	**5**
CNAV0020-1	*Introduction to naval construction* - André HAGE, Jean MARCHAL, Philippe RIGO	40	30	-	**5**
MECA0041-1	*Internal Combustion Engines* - Philippe NGENDAKUMANA - [1,5d FW]	30	30	[+]	**5**
MECA0031-2	*Kinematics and Dynamics of Mechanisms* - Olivier BRULS	30	30	-	**5**

Second year

Compulsory courses

ATFE0013-1	*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
[...] the courses 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 of the following focus :

Research Focus

Compulsory courses

MECA0464-1	*Large deformation of solids* - Jean-Philippe PONTHOT	30	30	-	**5**

Optional courses

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

CNAV0020-1	*Introduction to naval construction* - André HAGE, Jean MARCHAL, Philippe RIGO	40	30	-	**5**
MECA0138-1	*Welding and non-destructive tests* - N... - Suppl : Nathalie GERLACH, Adnen ben Mahmoud KECHAOU	30	30	-	**5**
MECA0460-1	*Introduction to safety and health at work on machines-tools. Risk analysis* - N..., Jean-Marie RIGO	15	15	-	**3**
MECA0035-1	*Lubrification and tribology* - Jean-Luc BOZET	30	30	-	**5**
MECA0051-2	*Total Quality Management* - Jean-Michel COMPÈRE, Jean-Marie RIGO	30	30	-	**5**
INFO0062-1	*Object-Oriented Programming* - Bernard BOIGELOT	30	30	-	**5**
MECA0139-2	*Rapid Prototyping* - Thierry DORMAL	10	10	-	**2**
MECA0067-1	*Special Technology Issues* - Jean-François DEBONGNIE	30	30	-	**5**
MECA0473-1	*Metallic materials Engineering* - Jacqueline LECOMTE#BECKERS	30	30	-	**5**
ECON0207-1	*Industrial Economics* - Axel GAUTIER	30	15	-	**5**
SYST0003-1	*Linear control systems* (english language) - Eric BULLINGER, Rodolphe SEPULCHRE	30	30	-	**5**
MECA0063-1	*Vehicle Architecture* - Pierre DUYSINX	30	30	-	**5**
MECA0478-1	*Electric, hybrid and non-conventional propulsion systems* - Pierre DUYSINX	30	30	-	**5**
MECA0062-1	*Vibration Testing and Experimental Modal Analysis* - Jean-Claude GOLINVAL	30	30	-	**5**
MECA0027-1	*Structure Optimization* - Claude FLEURY - Suppl : Pierre DUYSINX	30	30	-	**5**
MECA0006-1	*Production of cold and low-level heat* - Vincent LEMORT	30	30	-	**5**
MATH0462-1	*Discrete optimization* - Quentin LOUVEAUX	30	30	-	**5**
MECA0504-1	*Automation and activation of industrial production processes* - Olivier BRULS, Pierre DUYSINX	30	30	-	**5**
INFO2046-1	*Computational Geometry* - Eric BÉCHET	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)				

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" 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

MECA0036-1	*Finite Element Method* - Jean-Philippe PONTHOT	30	30	-	**5**
MECA0155-1	*Dynamics of Mechanical Systems* - Jean-Claude GOLINVAL	30	30	-	**5**
MECA0012-5	*Mechanics of materials I* - Jean-Pierre JASPART	30	30	-	**5**
MECA0018-1	*Industrial Forming Processes* - Jean-François DEBONGNIE	30	30	-	**5**
MECA0002-1	*Applied Thermodynamics and Introduction to Heat Engines* - Olivier LÉONARD	30	30	-	**5**
MECA0445-1	*Transfers of heat and matter* - Michel HOGGE	30	30	-	**5**