Two-Year Master Program (120 ECTS)

Access conditions to the Master (http://www.ulg.ac.be/cms/c_46322/master-en-ingenieur-civil-mecanicien)

First Year

Compulsory courses

Mechanical design and production

MECA0444-1	*Mechanical design* - JeanFrançois DEBONGNIE	30	30	-	**5**
APRI0005-3	*Integrated mechanical project* - Pierre DUYSINX - [5d FW]	50	130	[+]	**15**
MECA0474-1	*Mechanical Computer-Aided-Design* (english language) - Eric BÉCHET	30	30	-	**5**
MECA0462-2	*Materials selection* (english language) - Jacqueline LECOMTEBECKERS - [1d FW]	30	30	[+]	**5**

Management

FINA0001-1	*Financial statement analysis and financing an enterprise* - Jacques BERWART	45	-	-	**5**

Optional courses

Mecatronic

Choose at least 10 ECTS from the following courses :

MECA0504-1	*Industrial automation* - Olivier BRULS, Pierre DUYSINX	30	30	-	**5**
ELEN0074-1	*Sensors, microsensors and instrumentation* - Philippe VANDERBEMDEN	30	30	-	**5**
MECA0009-1	*Introduction to microtechnologies* (english language) - Tristan GILET	30	30	-	**5**

Modeling in mechanics

Choose at least 10 ECTS from the following courses :

MECA0029-1	*Mechanical Vibrations* - JeanClaude GOLINVAL	30	30	-	**5**
MECA0023-1	*Inelastic behavior of solids* - JeanPhilippe PONTHOT	30	30	-	**5**
MECA0010-1	*Stochastic modelling in mechanics* (english language) - Maarten ARNST	30	30	-	**5**
MECA0031-2	*Kinematics and Dynamics of Mechanisms* - Olivier BRULS	30	30	-	**5**

Optional courses

[...]	One course to be chosen from the optional classes in the 2nd Masters or other Masters programmes in the Faculty of Applied Sciences; this choice must be approved by the President of the Jury for that cycle.

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.				
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* (english language) - JeanPhilippe 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, 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* - JeanMarie RIGO	15	15	-	**2,5**
MECA0035-1	*Lubrification and tribology* - JeanLuc BOZET	30	30	-	**5**
MECA0051-2	*Total Quality Management* - JeanMichel COMPÈRE, JeanMarie RIGO	30	30	-	**5**
INFO0062-1	*Object-Oriented Programming* - Bernard BOIGELOT	30	30	-	**5**
MECA0139-2	*Rapid Prototyping* - Thierry DORMAL	10	10	-	**2,5**
MECA0008-1	*Microfluidics* (english language) - Tristan GILET	30	30	-	**5**
MECA0470-1	*Alternative methods of modeling in continuum mechanics* - Maarten ARNST, Eric BÉCHET, Ludovic NOELS	20	40	-	**5**
MECA0509-1	*Sustainable Engineering Processes. Designing for social, economic & environmental satisfaction* (english language) - Mustapha BELHABIB	15	15	-	**5**
MATH0461-1	*Introduction to numerical optimization* (english language) - Quentin LOUVEAUX	30	30	-	**5**
MECA0067-1	*Special Technology Issues* - JeanFrançois DEBONGNIE	30	30	-	**5**
MECA0473-1	*Metallic materials Engineering* - Jacqueline LECOMTEBECKERS	30	30	-	**5**
SYST0003-1	*Linear control systems* (english language) - Eric BULLINGER	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* (english language) - JeanClaude GOLINVAL	30	30	-	**5**
MECA0027-1	*Structural and multidisciplinary optimization* - Pierre DUYSINX, Patricia TOSSINGS	30	30	-	**5**
MECA0006-1	*Production systems of cold and heat* - Vincent LEMORT	30	30	-	**5**
MATH0462-1	*Discrete optimization* - Quentin LOUVEAUX	30	30	-	**5**
MECA0504-1	*Industrial automation* - Olivier BRULS, Pierre DUYSINX	30	30	-	**5**
INFO2046-1	*Computational Geometry* - Eric BÉCHET	30	30	-	**5**
MECA0069-1	*Series Production Methods* - JeanFrançois DEBONGNIE	30	30	-	**5**
MECA0004-1	*Vehicle performance and behaviour* - 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)				

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* (english language) - Michael GHILISSEN	16	16	-	**3**
GEST3004-1	*Marketing (operations and management)* (english language) - Michael GHILISSEN	16	16	-	**3**
GEST3005-2	*Accountancy and Finance* - Jacques BERWART	24	24	-	**4**
GEST3006-1	*Operations and supply chain management I* (english language) - Yasemin ARDA	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

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

Module 2 : Engine and electric propulsion systems

MECA0497-2	*Vehicle performance* (english language) - Pierre DUYSINX	15	10	-	**2**
MECA0498-2	*Internal combustion enignes* (english language) - Philippe NGENDAKUMANA	30	20	-	**4**
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	30	20	-	**4**
MECA0501-1	*Thermal and Electrical Management of vehicles* (english language) - Vincent LEMORT	15	10	-	**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* (english language) - JeanPhilippe PONTHOT	30	30	-	**5**
MECA0155-1	*Dynamics of Mechanical Systems* - JeanClaude GOLINVAL	30	30	-	**5**
MECA0012-5	*Solid mechanics* - Laurent DUCHENE	30	30	-	**5**
MECA0018-1	*Industrial Forming Processes* - JeanFrançois DEBONGNIE	30	30	-	**5**
MECA0002-1	*Applied Thermodynamics and Introduction to Heat Engines* - Olivier LÉONARD	30	30	-	**5**
MECA0445-1	*Heat transfer* - Michel HOGGE	30	30	-	**5**