Two-Year Master Program (120 ECTS)

First Year

Compulsory courses

		Th	Pr	Au	Cr
AERO0001-1	*Aerodynamics* (english language) - Thomas ANDRIANNE, Vincent TERRAPON	30	30	-	**5**
MECA0474-1	*Mechanical Computer-Aided-Design* (english language) - Eric BÉCHET	30	30	-	**5**
MECA0031-2	*Kinematics and Dynamics of Mechanisms* - Olivier BRULS	30	30	-	**5**
MECA0023-1	*Inelastic behavior of solids* - JeanPhilippe PONTHOT	30	30	-	**5**
AERO0030-1	*Computational fluid dynamics* (english language) - Vincent TERRAPON	30	30	-	**5**
AERO0023-1	*Aircraft design* - Grigorios DIMITRIADIS, Ludovic NOELS	30	30	-	**5**
AERO0003-1	*Flight mechanics and airplane performance* - Grigorios DIMITRIADIS	30	30	-	**5**
AERO0025-1	*Creation of satellite* - Gaëtan KERSCHEN	30	30	-	**5**
APRI0004-1	*Integrated project in aerospace* - Ludovic NOELS - [5d FW]	-	60	[+]	**5**
AERO0014-1	*Aeronautic and Space Propulsion* - Olivier LÉONARD	30	30	-	**5**
MECA0462-2	*Materials selection* (english language) - Jacqueline LECOMTEBECKERS, Davide RUFFONI - [1d FW]	30	30	[+]	**5**
MECA0029-1	*Theory of vibration* - JeanClaude GOLINVAL	30	30	-	**5**

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

Second year

Compulsory courses

ATFE0005-1	*Final work (including an internship or a placement in a company or 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 short list below.

LANG1957-1	*Dutch for Engeneering Students* (dutch language) - Claudine COLIN	60	-	-	**5**
LANG1958-1	*German for Engineering Students* (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

MECA0028-1	*Aeronautical Structures* - Ludovic NOELS	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.

Aeronautical Technologies

AERO0021-1	*Experimental Aerodynamics* - Grigorios DIMITRIADIS	30	30	-	**5**
AERO0016-1	*Fluid-structure interaction & aeroelasticity* (english language) - Grigorios DIMITRIADIS	30	30	-	**5**

AERO0015-1	*Mechanical design of turbomachinery* (english language) - JeanClaude GOLINVAL	30	30	-	**5**
AERO0004-1	*Turbulent Flow* (english language) - Vincent TERRAPON	30	30	-	**5**
MECA0502-1	*Mechanics of composites* (english language) - N... - Suppl : Michaël BRUYNEEL, Geoffrey DELIÈGE	30	30	-	**5**
MECA0032-1	*Flow in Turbomachines* - Olivier LÉONARD	30	30	-	**5**
Space Technology					
ASTR0004-2	*Astrophysics and Space Techniques* - Jean SURDEJ - [5d Peda. Tr.]	30	15	[+]	**5**
AERO0024-1	*Astrodynamics* - Gaëtan KERSCHEN	30	30	-	**5**
AERO0026-1	*Launch vehicles design and propulsion* - JeanLuc BOZET, Philippe NGENDAKUMANA	30	-	-	**5**
AERO0018-3	*Space Experiment Development* - Pierre ROCHUS	30	30	-	**5**
ELEN0008-1	*Principles of analog and digital telecommunications systems* - Marc VAN DROOGENBROECK	30	30	-	**5**
SPAT0032-2	*Remote sensing* - Christian BARBIER	30	30	-	**5**
AERO0028-1	*Introduction to plasma physics and reentry of space vehicles* (english language) - Thierry MAGIN	30	30	-	**5**
MECA0127-1	*Active Structures* - André PREUMONT	30	30	-	**5**
Computational mechanics					
MECA0464-1	*Large deformation of solids* (english language) - JeanPhilippe PONTHOT	30	30	-	**5**
MECA0058-1	*Fracture mechanics, damage and fatigue* (english language) - Ludovic NOELS	30	30	-	**5**
MECA0062-1	*Vibration testing and experimental modal analysis* (english language) - JeanClaude GOLINVAL	30	30	-	**5**
INFO0939-1	*High performance scientific computing* (english language) - Christophe GEUZAINE	30	30	-	**5**
MECA0465-1	*Robustness of digital models* - Gaëtan KERSCHEN	30	30	-	**5**
INFO2046-1	*Computational Geometry* - Eric BÉCHET	30	30	-	**5**
MECA0470-1	*Alternative methods of modeling in continuum mechanics* - Maarten ARNST, Eric BÉCHET, Ludovic NOELS	20	40	-	**5**
AERO0031-1	(pas organisé en 2013-2014) *Aerodynamics of high-speed* - N...	30	30	-	**5**
MECA0010-1	*Stochastic modelling* (english language) - Maarten ARNST	30	30	-	**5**
MECA0027-1	*Structural and multidisciplinary optimization* - Pierre DUYSINX, Patricia TOSSINGS	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* (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**

Adjusted programme for student of the Bachelors in Civil Engineering who have not taken the "Mechanics" or "Physics" 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 adapted programme for these students must first gain be approved by 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**
MECA0002-1	*Applied Thermodynamics and Introduction to Heat Engines* - Olivier LÉONARD	30	30	-	**5**
MECA0445-1	*Heat transfer* - Pierre DEWALLEF, Vincent TERRAPON	30	30	-	**5**

Adjusted programme for bachelors in Physical Sciences

This programme is defined in relation with the BAC in physical sciences organised by the University of Liège's Faculty of Sciences.
It is likely to be greatly modified for students with a BAC in physical sciences from other institutions, in terms of the knowledge gained, and courses not taken, and the personal project, whilst remaining within the limits of 75+60 credits.

First Year

Compulsory courses

MECA0001-1	*Mechanics of materials* - JeanPierre JASPART	30	30	-	**5**
SYST0002-1	*Modelling and analysis systems* - Rodolphe SEPULCHRE - Suppl : Erik QUAEGHEBEUR	30	30	-	**5**
MECA0012-5	*Solid mechanics* - Laurent DUCHENE	30	30	-	**5**
MECA0445-1	*Heat transfer* - Pierre DEWALLEF, Vincent TERRAPON	30	30	-	**5**
MECA0155-1	*Dynamics of Mechanical Systems* - JeanClaude GOLINVAL	30	30	-	**5**
MECA0036-1	*Finite Element Method* (english language) - JeanPhilippe PONTHOT	30	30	-	**5**
MECA0474-1	*Mechanical Computer-Aided-Design* (english language) - Eric BÉCHET	30	30	-	**5**
MECA0031-2	*Kinematics and Dynamics of Mechanisms* - Olivier BRULS	30	30	-	**5**
MECA0025-1	*Fluid Mechanics* - Eric DELHEZ	30	30	-	**5**
AERO0003-1	*Flight mechanics and airplane performance* - Grigorios DIMITRIADIS	30	30	-	**5**
APRI0004-1	*Integrated project in aerospace* - Ludovic NOELS - [5d FW]	-	60	[+]	**5**
MECA0462-2	*Materials selection* (english language) - Jacqueline LECOMTEBECKERS, Davide RUFFONI - [1d FW]	30	30	[+]	**5**
MECA0029-1	*Theory of vibration* - JeanClaude GOLINVAL	30	30	-	**5**
AERO0023-1	*Aircraft design* - Grigorios DIMITRIADIS, Ludovic NOELS	30	30	-	**5**
AERO0025-1	*Creation of satellite* - Gaëtan KERSCHEN	30	30	-	**5**

Second year

Compulsory courses

ATFE0005-1	*Final work (including an internship or a placement in a company or 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 course from the ULg courses' programme. In any case, this course must have the approval of the cycle's Jury President.				
LOGI0011-1	*Supply Chain Management* (english language) - Sabine LIMBOURG	45	-	-	**5**
LANG1957-1	*Dutch for Engeneering Students* (dutch language) - Claudine COLIN	60	-	-	**5**
LANG1958-1	*German for Engineering Students* (german language) - Françoise CARL	60	-	-	**5**

Research Focus

Compulsory courses

MECA0027-1	*Structural and multidisciplinary optimization* - Pierre DUYSINX, Patricia TOSSINGS	30	30	-	**5**
AERO0014-1	*Aeronautic and Space Propulsion* - Olivier LÉONARD	30	30	-	**5**
MECA0023-1	*Inelastic behavior of solids* - JeanPhilippe PONTHOT	30	30	-	**5**
AERO0001-1	*Aerodynamics* (english language) - Thomas ANDRIANNE, Vincent TERRAPON	30	30	-	**5**

Optional courses

[...]	2 courses to choose from options of regular program of the 2nd Master