Two-Year Master Program (120 ECTS)

First year (Full English)

Compulsory Courses

		Or	Th	Pr	Au	Cr
AERO0001-1	*Aerodynamics* (english language) - Thomas ANDRIANNE, Vincent TERRAPON	Q2	30	30	-	**5**
MECA0474-1	*Mechanical Computer-Aided-Design* (english language) - Eric BÉCHET	TA	30	30	-	**5**
MECA0031-2	*Kinematics and dynamics of mechanisms* (english language) - Olivier BRULS	Q2	30	30	-	**5**
MECA0023-1	*Advanced solid mechanics* (english language) - JeanPhilippe PONTHOT	Q1	30	30	-	**5**
AERO0030-1	*Computational fluid dynamics* (english language) - Vincent TERRAPON	Q2	30	30	-	**5**
AERO0003-1	*Flight Dynamics and Control* (english language) - Grigorios DIMITRIADIS	Q2	30	30	-	**5**
AERO0025-1	*Spacecraft design* (english language) - Gaëtan KERSCHEN	Q1	30	30	-	**5**
APRI0004-1	*Aerospace design project* (english language) - Grigorios DIMITRIADIS, Ludovic NOELS - [5d FW]	TA	30	90	[+]	**10**
	Notice : With the accord of the President of the jury, notably according to technical matter, the integrated project can be in line with a interdisciplinary project (for exemple Ingénieur de projets, Eurobot, Eco-Shell Marathon,...), done between the third year of the bachelor and the second year of the master.					
AERO0014-1	*Aerospace propulsion* (english language) - Olivier LÉONARD		30	30	-	**5**
MECA0462-2	*Materials selection* (english language) - Jacqueline LECOMTEBECKERS, Davide RUFFONI - [1d FW]	Q1	30	30	[+]	**5**
MECA0029-1	*Theory of vibration* (english language) - JeanClaude GOLINVAL	Q1	30	30	-	**5**
	Notice : Students who, in their bachelor's degree, took one or more of the compulsory course(s) must replace them by other(s) course(s) of the Faculty ; this choice must be approuved by the President of de cycle's jury.					

Second year (Full English - Prospects 2015-2016)

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 course

A course chosen in the course program of the university or in the list below :

	The choice must be approuved by the President of the cycle's jury					
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**
[...]	one course of the university					

Research focus

Compulsory Courses

MECA0028-1	*Aeronautical Structures* - Ludovic NOELS	Q1	30	30	-	**5**

Optional course

Student choose 25 crédits among optional courses in this list below.

With the accord of the President of the Jury, student can choice 5 credits among the other programme of the Faculty

Various courses

ASTG0116-1	*Observation placement* - Pierre DEWALLEF	TA	-	-	-	**3**
ASTG0117-1	*Traineeship* - Pierre DEWALLEF	TA	-	-	-	**5**

GEST3162-1	*Introduction to company management* (english language) - Michael GHILISSEN, François PICHAULT, Thierry PIRONET, Didier VAN CAILLIE	Q2	25	25	-	**5**
Aeronautical Technologies						
AERO0032-1	*Aeroelasticity and experimental aerodynamics* (english language) - Thomas ANDRIANNE, Grigorios DIMITRIADIS	Q1	30	30	-	**5**
AERO0015-1	*Mechanical design of turbomachinery* (english language) - JeanClaude GOLINVAL	Q1	30	30	-	**5**
MECA0502-1	*Mechanics of composites* (english language) - Michaël BRUYNEEL	Q1	30	30	-	**5**
MECA0032-1	*Flow in Turbomachines* - Olivier LÉONARD		30	30	-	**5**
AERO0004-1	*Turbulent Flow* (english language) - Vincent TERRAPON	Q1	30	30	-	**5**
Space Technology						
ASTR0004-2	*Astrophysics and Space Techniques* - Jean SURDEJ - [5d Peda. Tr.]	Q1	30	15	[+]	**5**
AERO0024-1	*Astrodynamics* - Gaëtan KERSCHEN	Q1	30	30	-	**5**
AERO0026-1	*Launch vehicles design and propulsion* - JeanLuc BOZET, Philippe NGENDAKUMANA	Q2	30	-	-	**5**
AERO0018-3	*Space Experiment Development* - Pierre ROCHUS		30	30	-	**5**
ELEN0008-1	*Principles of analog and digital telecommunications systems* - Marc VAN DROOGENBROECK	Q2	30	30	-	**5**
SPAT0032-2	*Remote sensing* - Christian BARBIER	Q1	30	30	-	**5**
AERO0033-1	*Aerothermodynamics of high-speed flows* (english language) - Grigorios DIMITRIADIS, Thierry MAGIN - [1d FW]	Q2	30	30	[+]	**5**
MECA0127-1	*Active Structures* - André PREUMONT	TA	30	30	-	**5**
Computational mechanics						
MECA0464-1	*Large deformation of solids* (english language) - JeanPhilippe PONTHOT	Q1	30	30	-	**5**
MECA0058-1	*Fracture mechanics, damage and fatigue* (english language) - Ludovic NOELS	Q1	30	30	-	**5**
MECA0062-1	*Vibration testing and experimental modal analysis* (english language) - JeanClaude GOLINVAL	Q1	30	30	-	**5**
INFO0939-1	*High performance scientific computing* (english language) - Christophe GEUZAINE - [20h Proj.]	Q1	30	15	[+]	**5**
INFO2046-2	*Computational geometry* (english language) - Eric BÉCHET - [90h Proj.]	TA	30	-	[+]	**5**
MECA0470-1	*New methods in computational mechanics* (english language) - Maarten ARNST, Eric BÉCHET, Ludovic NOELS	Q2	20	40	-	**5**
AERO0033-1	*Aerothermodynamics of high-speed flows* (english language) - Grigorios DIMITRIADIS, Thierry MAGIN - [1d FW]	Q2	30	30	[+]	**5**
MECA0010-1	*Stochastic modelling* (english language) - Maarten ARNST	Q2	30	30	-	**5**
MECA0027-1	*Structural and multidisciplinary optimization* - Pierre DUYSINX, Patricia TOSSINGS	Q1	30	30	-	**5**
[...]	One course to choose among other courses of the Faculty ; this choice must have the approval of the cycles's Jury President					

Note : Students who, in their bachelor's degree, have already followed one or several optional course(s) of this list have to replace it.

Second year (2014-2015 transitory program)

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	TA	60	-	-	**5**
LANG1958-1	*German for Engineering Students* (german language) - Françoise CARL	TA	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

MECA0028-1	*Aeronautical Structures* - Ludovic NOELS	Q1	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.

Courses out of modules						
ASTG0116-1	*Observation placement* - Pierre DEWALLEF	TA	-	-	-	**3**
ASTG0117-1	*Traineeship* - Pierre DEWALLEF	TA	-	-	-	**5**
GEST3162-1	*Introduction to company management* (english language) - Michael GHILISSEN, François PICHAULT, Thierry PIRONET, Didier VAN CAILLIE	Q2	25	25	-	**5**
Aeronautical Technologies						
AERO0032-1	*Aeroelasticity and experimental aerodynamics* (english language) - Thomas ANDRIANNE, Grigorios DIMITRIADIS	Q1	30	30	-	**5**
AERO0015-1	*Mechanical design of turbomachinery* (english language) - JeanClaude GOLINVAL	Q1	30	30	-	**5**
MECA0502-1	*Mechanics of composites* (english language) - Michaël BRUYNEEL	Q1	30	30	-	**5**
MECA0032-1	*Flow in Turbomachines* - Olivier LÉONARD		30	30	-	**5**
AERO0004-1	*Turbulent Flow* (english language) - Vincent TERRAPON	Q1	30	30	-	**5**
Space Technology						
ASTR0004-2	*Astrophysics and Space Techniques* - Jean SURDEJ - [5d Peda. Tr.]	Q1	30	15	[+]	**5**
AERO0024-1	*Astrodynamics* - Gaëtan KERSCHEN	Q1	30	30	-	**5**
AERO0026-1	*Launch vehicles design and propulsion* - JeanLuc BOZET, Philippe NGENDAKUMANA	Q2	30	-	-	**5**
AERO0018-3	*Space Experiment Development* - Pierre ROCHUS		30	30	-	**5**
ELEN0008-1	*Principles of analog and digital telecommunications systems* - Marc VAN DROOGENBROECK	Q2	30	30	-	**5**
SPAT0032-2	*Remote sensing* - Christian BARBIER	Q1	30	30	-	**5**
AERO0033-1	*Aerothermodynamics of high-speed flows* (english language) - Grigorios DIMITRIADIS, Thierry MAGIN - [1d FW]	Q2	30	30	[+]	**5**
MECA0127-1	*Active Structures* - André PREUMONT	TA	30	30	-	**5**
Computational mechanics						
MECA0464-1	*Large deformation of solids* (english language) - JeanPhilippe PONTHOT	Q1	30	30	-	**5**
MECA0058-1	*Fracture mechanics, damage and fatigue* (english language) - Ludovic NOELS	Q1	30	30	-	**5**
MECA0062-1	*Vibration testing and experimental modal analysis* (english language) - JeanClaude GOLINVAL	Q1	30	30	-	**5**
INFO0939-1	*High performance scientific computing* (english language) - Christophe GEUZAINE - [20h Proj.]	Q1	30	15	[+]	**5**
INFO2046-2	*Computational geometry* (english language) - Eric BÉCHET - [90h Proj.]	TA	30	-	[+]	**5**
MECA0470-1	*New methods in computational mechanics* (english language) - Maarten ARNST, Eric BÉCHET, Ludovic NOELS	Q2	20	40	-	**5**
AERO0033-1	*Aerothermodynamics of high-speed flows* (english language) - Grigorios DIMITRIADIS, Thierry MAGIN - [1d FW]	Q2	30	30	[+]	**5**
MECA0010-1	*Stochastic modelling* (english language) - Maarten ARNST	Q2	30	30	-	**5**
MECA0027-1	*Structural and multidisciplinary optimization* - Pierre DUYSINX, Patricia TOSSINGS	Q1	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

Notice : The specialisation in management will be taught for the last time in

2014-2015.

Compulsory courses

GEST3001-1	*People management and organisation* - Jocelyne ROBERT	Q1	24	24	-	**4**
GEST3002-1	*Human Resources* - Jocelyne ROBERT	Q1	24	-	-	**2**
GEST3003-1	*Competitive strategy in the marketplace* (english language) - Michael GHILISSEN	Q1	16	16	-	**3**
GEST3004-1	*Marketing (operations and management)* (english language) - Michael GHILISSEN	Q1	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	Q1	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	Q1	16	16	-	**3**
GEST3011-2	*ICT for Business* - Alain DUBOIS	Q1	16	16	-	**3**
GEST3012-1	*Financial and actuarial modelling* - Louis ESCH	Q1	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

MECA0036-2	*Finite Element Method* (english language) - JeanPhilippe PONTHOT - [40h Proj.]	Q2	30	30	[+]	**5**
MECA0155-2	*Dynamics of Mechanical Systems* - JeanClaude GOLINVAL - [5h Labo., 10h Proj.]	Q1	30	30	[+]	**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**
MECA0445-2	*Heat transfer* - Pierre DEWALLEF, Vincent TERRAPON - [4h Labo., 9h Proj.]	Q2	30	26	[+]	**5**
MECA0025-3	*Fluid Mechanics* - Eric DELHEZ - [30h Proj.]	Q2	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

MECA0001-2	*Mechanics of materials* - JeanPierre JASPART - Suppl : Laurent DUCHENE - [2h Labo., 12h Proj.]	Q1	30	28	[+]	**5**
SYST0002-2	*Modelling and analysis of systems* - Rodolphe SEPULCHRE - Suppl : Erik QUAEGHEBEUR - [15h Proj.]	Q1	30	30	[+]	**5**

MECA0012-6	*Solid mechanics* - Laurent DUCHENE - [15h Proj.]	Q2	30	30	[+]	**5**
MECA0445-2	*Heat transfer* - Pierre DEWALLEF, Vincent TERRAPON - [4h Labo., 9h Proj.]	Q2	30	26	[+]	**5**
MECA0155-2	*Dynamics of Mechanical Systems* - JeanClaude GOLINVAL - [5h Labo., 10h Proj.]	Q1	30	30	[+]	**5**
MECA0036-2	*Finite Element Method* (english language) - JeanPhilippe PONTHOT - [40h Proj.]	Q2	30	30	[+]	**5**
MECA0474-1	*Mechanical Computer-Aided-Design* (english language) - Eric BÉCHET	TA	30	30	-	**5**
MECA0031-2	*Kinematics and dynamics of mechanisms* (english language) - Olivier BRULS	Q2	30	30	-	**5**
MECA0025-3	*Fluid Mechanics* - Eric DELHEZ - [30h Proj.]	Q2	30	30	[+]	**5**
AERO0003-1	*Flight Dynamics and Control* (english language) - Grigorios DIMITRIADIS	Q2	30	30	-	**5**
APRI0004-1	*Aerospace design project* (english language) - Grigorios DIMITRIADIS, Ludovic NOELS - [5d FW]	TA	30	90	[+]	**5**
MECA0462-2	*Materials selection* (english language) - Jacqueline LECOMTEBECKERS, Davide RUFFONI - [1d FW]	Q1	30	30	[+]	**5**
MECA0029-1	*Theory of vibration* (english language) - JeanClaude GOLINVAL	Q1	30	30	-	**5**
AERO0025-1	*Spacecraft design* (english language) - Gaëtan KERSCHEN	Q1	30	30	-	**5**

Second year

Research Focus

Compulsory courses

MECA0028-1	*Aeronautical Structures* - Ludovic NOELS	Q1	30	30	-	**5**
AERO0014-1	*Aerospace propulsion* (english language) - Olivier LÉONARD		30	30	-	**5**
MECA0023-1	*Advanced solid mechanics* (english language) - JeanPhilippe PONTHOT	Q1	30	30	-	**5**
AERO0001-1	*Aerodynamics* (english language) - Thomas ANDRIANNE, Vincent TERRAPON	Q2	30	30	-	**5**

Optional courses

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

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* - Sabine LIMBOURG	Q1	45	-	-	**5**
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**