Study programmes 2009-2010
Faculty of Applied Sciences
Master in Aerospace engineering

Two-Year Master Program (120 ECTS)

First Year

Compulsory courses

AERO0001-1	*Aerodynamics, 30h Th, 30h Exc* - Jean-André ESSERS	30	30	-	**5**
MECA0474-1	*CAD in mechanical engineering* - Eric BÉCHET	30	30	-	**5**
MECA0031-2	*Kinematics and Dynamics of Mechanisms* - Olivier BRULS	30	30	-	**5**
MECA0023-1	*Inelastic behavior of solids* - Jean-Philippe PONTHOT	30	30	-	**5**
MECA0025-1	*Fluid Mechanics* - Eric DELHEZ	30	30	-	**5**
AERO0023-1	*Aircraft design* - 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	*Unified project in aerospace* - Ludovic NOELS - [5d FW]	-	60	[+]	**5**
AERO0014-1	*Aeronautic and Space Propulsion* - Olivier LÉONARD	30	30	-	**5**
MECA0462-1	*MECA0462: materials selection* - Jacqueline LECOMTE#BECKERS	30	30	-	**5**
MECA0029-1	*Mechanical Vibrations* - Jean-Claude 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* - COLLÉGIALITÉ	-	-	-	**20**
MECA0027-1	*Structure Optimization* - Claude FLEURY	30	30	-	**5**
[...]	A course to be chosen from the university's programme of courses (with the agreement of the cycle's President of the Jury)				

Choose one of the following focus :

Research Focus

Compulsory courses

ASTG0013-1	*Industrial placement* - COLLÉGIALITÉ - [40d Internship]	-	-	[+]	**8**
MECA0481-1	*Introduction to research methodology* - Hassan BOUGRINE, Grigorios DIMITRIADIS, Pierre DUYSINX	10	10	-	**2**

Optional courses

With the agreement of the jury students choose courses for 20 credits among the following :

Aeronautical Technologies

AERO0021-1	*Experimental Aerodynamics* - Grigorios DIMITRIADIS	30	30	-	**5**
AERO0016-4	*Aeroelasticity* - Grigorios DIMITRIADIS	30	30	-	**5**
AERO0015-1	*Mechanical Design of Turbomachinery* - Jean-Claude GOLINVAL	30	30	-	**5**
MECA0463-1	*Mechanics of composite materials* - N...	30	30	-	**5**
MECA0032-1	*Flow in Turbomachines* - Olivier LÉONARD	30	30	-	**5**
AERO0020-2	*Theoretical training for piloting a private aircraft* - Claude FLEURY	30	30	-	**5**
MECA0464-1	*Large deformation of solids* - Jean-Philippe PONTHOT	30	30	-	**5**
MECA0083-2	*Fluid-Structure Interaction* - Grigorios DIMITRIADIS	30	30	-	**5**
MECA0058-1	*Fracture mechanics, damage and fatigue* - Ludovic NOELS	30	30	-	**5**
MECA0028-1	*Aeronautical Structures* - Ludovic NOELS	30	30	-	**5**
MECA0090-1	*Composite Structure Design (Fiber reinforced)* - Claude FLEURY	20	10	-	**3**
MECA0127-1	*Active Structures* - André PREUMONT	30	30	-	**5**

Space Technology

ELEN0017-1	*Analysis and Design of Telecommunications Systems* - Marc VAN DROOGENBROECK	30	30	-	**5**
ASTR0004-2	*Astrophysics and Space Techniques* - Jean SURDEJ - [5d Peda. Tr.]	30	15	[+]	**5**
AERO0024-1	*Astrodynamics* - Gaëtan KERSCHEN	30	30	-	**5**
AERO0026-1	*Booster rocket design* - Jean-Luc BOZET	30	-	-	**3**
AERO0018-3	*Space Experiment Development* - Pierre ROCHUS	30	30	-	**5**
PHYS0048-1	*Coherent and Incoherent Optics* - Serge HABRAKEN	30	30	-	**5**
ELEN0008-1	*Principles of analog and digital telecommunications systems* - Marc VAN DROOGENBROECK	30	30	-	**5**
AERO0027-1	*Deployable structures* - Olivier BRULS	15	15	-	**3**
MECA0105-1	*Combustion in Rocket Engines* - Philippe NGENDAKUMANA	15	15	-	**3**
MECA0466-2	*Space propulsion techniques* - Jean-Luc BOZET	10	10	-	**2**
SPAT0031-1	*Spatial systems for terrestrial observation* - Christian BARBIER	30	-	-	**3**

Other optional courses

SYST0003-1	*Linear control systems* - Eric BULLINGER, Rodolphe SEPULCHRE	30	30	-	**5**
MATH0024-1	*Further Study of Digital Analysis (Equations with Partial Derivatives)* - Jean-André ESSERS	30	30	-	**5**
MECA0062-1	*Vibration Testing and Experimental Modal Analysis* - Jean-Claude GOLINVAL	30	30	-	**5**
MECA0120-1	*Hydraulic and pneumatic systems* - Liviu MASALAR	30	30	-	**5**
ECON0207-1	(pas organisé en 2009-2010) *Industrial Economics* - Axel GAUTIER	30	15	-	**5**
INFO0939-1	*High performance scientific computing* (english) - Christophe GEUZAINE	30	30	-	**5**
MECA0004-1	*Vehicle performance and behaviour* - Pierre DUYSINX	30	30	-	**5**
MECA0465-1	*Model strength and structural integrity of components* - Gaëtan KERSCHEN	30	30	-	**5**
CHIM0064-1	*Aerospace materials and composite materials* - N... - Suppl : Yann BOURGEOIS	20	-	-	**2**

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

GEST3000-2	*First steps in an enterprise* - COLLÉGIALITÉ	24	-	-	**2**
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	16	16	-	**3**
GSTG3001-1	*Business plan* - COLLÉGIALITÉ - [30h Internship]	-	-	[+]	**3**
GSTG3002-1	*Company diagnostic* - COLLÉGIALITÉ - [30h Internship]	-	-	[+]	**3**

Optional courses

Choose one of the following courses :

GEST3010-1	*Operations and supply chain management II* - Sabine LIMBOURG	16	16	-	**3**
GEST3011-2	*ICT in the service of the company* - Maud BAY	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* - Jean-Philippe PONTHOT	30	30	-	**5**
MECA0155-1	*Dynamics of Mechanical Systems* - Jean-Claude GOLINVAL	30	30	-	**5**
MECA0012-5	*Mechanics of materials* (english) - Serge CESCOTTO	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**
PHYS2026-1	*Physics 4 : Microscopic physics (partime a : waves optics, partime b : introduction to nuclear physics)* - Laurent DREESEN	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	*Solid mechanics* (english) - Serge CESCOTTO	30	30	-	**5**
SYST0002-1	*Linear systems* - Rodolphe SEPULCHRE	30	30	-	**5**
MECA0012-5	*Mechanics of materials* (english) - Serge CESCOTTO	30	30	-	**5**
MECA0445-1	*Transfers of heat and matter* - Michel HOGGE	30	30	-	**5**
MECA0155-1	*Dynamics of Mechanical Systems* - Jean-Claude GOLINVAL	30	30	-	**5**
MECA0036-1	*Finite Element Method* - Jean-Philippe PONTHOT	30	30	-	**5**
MECA0474-1	*CAD in mechanical engineering* - 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	*Unified project in aerospace* - Ludovic NOELS - [5d FW]	-	60	[+]	**5**
MECA0462-1	*MECA0462: materials selection* - Jacqueline LECOMTE#BECKERS	30	30	-	**5**
MECA0029-1	*Mechanical Vibrations* - Jean-Claude GOLINVAL	30	30	-	**5**
AERO0023-1	*Aircraft design* - Ludovic NOELS	30	30	-	**5**
AERO0025-1	*Creation of satellite* - Gaëtan KERSCHEN	30	30	-	**5**

Second year

Compulsory courses

ASTG0013-1	*Industrial placement* - COLLÉGIALITÉ - [40d Internship]	-	-	[+]	**8**
ATFE0005-1	*Final work* - COLLÉGIALITÉ	-	-	-	**20**
MECA0481-1	*Introduction to research methodology* - Hassan BOUGRINE, Grigorios DIMITRIADIS, Pierre DUYSINX	10	10	-	**2**

Research Focus

Compulsory courses

MECA0027-1	*Structure Optimization* - Claude FLEURY	30	30	-	**5**
AERO0014-1	*Aeronautic and Space Propulsion* - Olivier LÉONARD	30	30	-	**5**
MECA0023-1	*Inelastic behavior of solids* - Jean-Philippe PONTHOT	30	30	-	**5**
AERO0001-1	*Aerodynamics, 30h Th, 30h Exc* - Jean-André ESSERS	30	30	-	**5**

Optional courses

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