Study programmes 2008-2009
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 - Suppl : Grigorios DIMITRIADIS	30	30	-	**5**
MECA0474-1	*Mechanical CAD / CAM* - Eric BÉCHET	30	30	-	**5**
MECA0031-2	*Kinematics and Dynamics of Mechanisms* - Olivier BRULS	30	30	-	**5**
MECA0023-1	*Advanced Solid Mechanics* - Jean-Philippe PONTHOT	30	30	-	**5**
MECA0025-1	*Fluid Mechanics* - Jean-André ESSERS	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	*Satellite engineering* - 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* - Gaëtan KERSCHEN	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 in this Masters programme or courses on the Faculty's programme; this choice must be approved by the President of the cycle's Jury.

Optional courses

MATH0461-1	*Intorduction to optimization* - Quentin LOUVEAUX	30	30	-	**5**
MECA0471-1	*Finite volumes and fluid dynamics* - Jean-André ESSERS	30	30	-	**5**

Second year

Compulsory courses

ATFE0005-1	*Final work* - COLLÉGIALITÉ	-	-	-	**20**
MECA0028-1	*Aeronautical Structures* - Claude FLEURY	30	30	-	**5**

Optional courses

[...] 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... - Suppl : Michaël BRUYNEEL	30	30	-	**5**
MECA0032-1	*Flow in Turbomachines* - Olivier LÉONARD	30	30	-	**5**
AERO0020-1	*Theoretical training for piloting a private aircraft* - Claude FLEURY	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**
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	*Rocket ballistics and the orbit of artificial satellites* - 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**
MECA0465-1	*Model strength and structural integrity of components* - Gaëtan KERSCHEN	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* - N... - Suppl : Olivier LÉONARD	10	10	-	**2**
Other optional courses					
SYST0003-1	*Linear control systems* - Damien ERNST, 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 2008-2009) *Industrial Economics* - Axel GAUTIER	30	15	-	**5**

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

Compulsory courses

GEST3000-1	*First steps in an enterprise* - Robert NONDONFAZ, Bernard SURLEMONT	0,5	-	-	**2**
GEST3001-1	*Organization analysis* - Annie CORNET	-	-	-	**3**
GEST3002-1	*Human Resources Management* - Jocelyne ROBERT	16	-	-	**3**
GEST3003-1	*Competitive Strategy in the Marketplace* (english) - Michael GHILISSEN	16	-	-	**3**
GEST3004-1	*Marketing (operations and management)* (english) - Michael GHILISSEN	16	-	-	**3**
GEST3005-1	*Accountancy and Finance* - Jacques BERWART	24	-	-	**4**
GEST3006-1	*Production (Supply chain management)* (english) - Yasemin ARDA	45	-	-	**3**
GSTG3001-1	*Internship* - COLLÉGIALITÉ	-	-	-	**6**

Optional courses

Choose one of the following courses :

GEST3010-1	*Production 2 (Supply Chain Management 2nd part)* (english) - Robert NONDONFAZ	-	-	-	**3**
GEST3011-1	*ICT in the service of the company* - Alain DUBOIS	30	-	-	**3**
GEST3012-1	*Financial and actuarial modelling tools* - Louis ESCH	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

MECA0443-1	*CAO / Finite Element Methods* - Eric BÉCHET, Jean-Philippe PONTHOT	45	30	-	**6**
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* - N... - Suppl : Olivier LÉONARD	30	30	-	**5**
MECA0445-2	*Transfers of heat and matter* - Michel HOGGE	30	15	-	**4**
PHYS0057-1	*Wave optics and wave mechanics* - 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**
MECA0445-2	*Transfers of heat and matter* - Michel HOGGE	30	15	-	**4**
MECA0155-1	*Dynamics of Mechanical Systems* - Jean-Claude GOLINVAL	30	30	-	**5**
MECA0443-1	*CAO / Finite Element Methods* - Eric BÉCHET, Jean-Philippe PONTHOT	45	30	-	**6**
MECA0474-1	*Mechanical CAD / CAM* - Eric BÉCHET	30	30	-	**5**
MECA0031-2	*Kinematics and Dynamics of Mechanisms* - Olivier BRULS	30	30	-	**5**
MECA0025-1	*Fluid Mechanics* - Jean-André ESSERS	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* - Gaëtan KERSCHEN	30	30	-	**5**
AERO0023-1	*Aircraft design* - Ludovic NOELS	30	30	-	**5**
AERO0025-1	*Satellite engineering* - 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

MECA0028-1	*Aeronautical Structures* - Claude FLEURY	30	30	-	**5**
AERO0014-1	*Aeronautic and Space Propulsion* - Olivier LÉONARD	30	30	-	**5**
MECA0023-1	*Advanced Solid Mechanics* - Jean-Philippe PONTHOT	30	30	-	**5**
AERO0001-1	*Aerodynamics, 30h Th, 30h Exc* - Jean-André ESSERS - Suppl : Grigorios DIMITRIADIS	30	30	-	**5**

Optional courses

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