Cycle view of the study programme

		Bl	Or	Th	Pr	Au	Cr

Depending on your track record or your professional/research focus, some prerequisites/corequisites of your first year program might appear in bloc 2. You are therefore invited to go through the list of courses suggested in bloc 2 even if you enroll for the first time in this master program.

To complete their curriculum, students must earn or validate the 55 credits of the compulsory courses (including the master thesis and internship), 10 credits of a thematic, 25 credits of optional courses and 30 credits from the professional focus. Ideally, students enrolling in the master program should have acquired the skills and knowledge corresponding to the 40 credits in "Mechanics" offered as part of the bachelor program in engineering.

Compulsory Courses (B1 : 20Cr, B2 : 35Cr)

MECA0462-2	*Materials selection* (english language) - Anne MERTENS, Davide RUFFONI - [30h Proj., 1d FW]	B1	Q1	26	26	[+]	**5**
MECA0029-1	*Theory of vibration* (english language) - JeanClaude GOLINVAL - [30h Proj.] **Corequisite :** MECA0036-2 - Finite Element Method MECA0155-2 - Dynamique des systèmes mécaniques	B1	Q1	26	26	[+]	**5**
AERO0001-1	*Aerodynamics* (english language) - Thomas ANDRIANNE, Vincent TERRAPON - [2h Labo., 25h Proj.]	B1	Q1	27	25	[+]	**5**
AERO0036-1	*Spacecraft control* (english language) - Christophe COLLETTE	B1	Q2	26	26	-	**5**
ATFE0005-1	*Master thesis and internship* (english language) - *Master thesis* - JeanPhilippe PONTHOT - [750h Proj.] - *Integration internship* - Pierre DEWALLEF	B2	TA - -	 - -	 [+] -		**30**
GEST3162-1	*Principles of management* (english language) - Michael GHILISSEN, François PICHAULT	B2	Q1	25	25	-	**5**

Thematics (B1 : 40Cr, B2 : 25Cr)

Choose a thematic between "Aeronautics" and "Space engineering". (B1 : 10Cr)

Aeronautics (B1 : 10Cr)

MECA0023-1	*Advanced solid mechanics* (english language) - JeanPhilippe PONTHOT - [30h Proj.]	B1	Q1	26	26	[+]	**5**
MECA0028-1	*Aeronautical structures* (english language) - Ludovic NOELS - [70h Proj.]	B1	Q2	30	20	[+]	**5**

Space engineering (B1 : 10Cr)

AERO0018-3	*Space experiment development* (english language) - Denis GRODENT, Jerôme LOICQ	B1	Q2	26	26	-	**5**
PHYS0048-1	*Coherent and incoherent optics* (english language) - *Coherent optics and lasers applications* - Serge HABRAKEN - *Instrumental optics I* - Serge HABRAKEN	B1	Q1 10 20	 15 15	 - -		**5**

Single focus (B1 : 30Cr)

Professional focus in aerospace engineering (B1 : 30Cr)

Compulsory Courses

APRI0004-1	*Aerospace design project* (english language) - Grigorios DIMITRIADIS, Ludovic NOELS - [10h Labo., 260h Proj., 5d FW] **Corequisite :** AERO0003-1 - Flight Dynamics and Control AERO0001-1 - Aerodynamics AERO0014-1 - Aerospace propulsion	B1	TA	30	-	[+]	**10**
AERO0025-1	*Satellite engineering* (english language) - Gaëtan KERSCHEN -	B1	Q1	52	-	-	**5**

Suppl : Valery BROUN

AERO0003-1	*Flight Dynamics and Control* (english language) - Christophe COLLETTE, Grigorios DIMITRIADIS **Corequisite :** AERO0001-1 - Aerodynamics	B1	Q2	26	26	-	**5**
AERO0014-1	*Aerospace propulsion* (english language) - Koen HILLEWAERT **Corequisite :** AERO0001-1 - Aerodynamics	B1	Q2	26	26	-	**5**
AERO0030-1	*Computational fluid dynamics* (english language) - Vincent TERRAPON - [10h Labo.] **Corequisite :** MECA0025-3 - Mécanique des fluides	B1	Q2	30	20	[+]	**5**

Optional courses

Choose 25 credits from the list below: (B2 : 25Cr)

The subjects MECA0025-3, MECA0155-2 and MECA0036-2 are corequisite to some compulsory courses of the master program. They must be taken as a priority, unless they were already taken as part of the bachelor in engineering, or unless the corresponding knowledge and skills have been acquired previously.

MECA0025-3	*Fluid Mechanics* - Eric DELHEZ - [30h Proj.]	B2	Q2	26	26	[+]	**5**
MECA0155-2	*Dynamics of mechanical systems* - JeanClaude GOLINVAL - [5h Labo., 10h Proj.]	B2	Q1	26	26	[+]	**5**
MECA0036-2	*Finite Element Method* (english language) - JeanPhilippe PONTHOT - [40h Proj.]	B2	Q2	26	26	[+]	**5**
[...]	With the agreement of the jury, choose 5 credits in any master program of the Faculty						
[...]	With the agreement of the President of the Jury, a maximum of 5 credits can be selected among the courses of the Master in Space Sciences						
PROJ0011-2	*Personal student project* (english language) - Pierre DUYSINX, Liesbet GERIS, Grégoire LÉONARD - [150h Proj.]	B2	TA	-	-	[+]	**5**

Aeronautics

AERO0032-1	*Aeroelasticity and experimental aerodynamics* (english language) - Thomas ANDRIANNE, Grigorios DIMITRIADIS **Prerequisite :** MECA0029-1 - Theory of vibration AERO0001-1 - Aerodynamics	B2	Q1	26	26	-	**5**
AERO0015-1	*Mechanical design of turbomachinery* (english language) - JeanClaude GOLINVAL, Florence NYSSEN - [30h Proj.] **Prerequisite :** MECA0029-1 - Theory of vibration	B2	Q1	26	26	[+]	**5**
MECA0502-1	*Mechanics of composites* (english language) - Michaël BRUYNEEL	B2	Q1	26	26	-	**5**
MECA0032-1	*Flow in turbomachines* (english language) - Koen HILLEWAERT - [60h Proj.] **Prerequisite :** AERO0001-1 - Aerodynamics AERO0030-1 - Computational fluid dynamics	B2	Q1	26	26	[+]	**5**
AERO0004-1	*Turbulent Flows* (english language) - Vincent TERRAPON - [40h Proj.]	B2	Q1	26	26	[+]	**5**
AERO0033-1	*Aerothermodynamics of high-speed flows* (english language) - Grigorios DIMITRIADIS, Thierry MAGIN - [1d FW] **Prerequisite :** AERO0001-1 - Aerodynamics	B2	Q2	26	26	[+]	**5**
MECA0023-1	*Advanced solid mechanics* (english language) - JeanPhilippe PONTHOT - [30h Proj.]	B2	Q1	26	26	[+]	**5**

Space engineering

AERO0024-1	*Astrodynamics* (english language) - Gaëtan KERSCHEN - Suppl : Pierre ROCHUS - [20h Proj.]	B2	Q1	26	26	[+]	**5**
SPAT0032-2	*Remote sensing* (english language) - Christian BARBIER	B2	Q1	30	30	-	**5**
AERO0026-1	*Lauch vehicles design and propulsion* (english language) - JeanLuc BOZET	B2	Q2	30	-	-	**5**
ELEN0008-1	*Principles of analog and digital telecommunications systems* - Marc VAN DROOGENBROECK	B2	Q2	26	26	-	**5**
PHYS0048-1	*Coherent and incoherent optics* (english language) - *Coherent optics and lasers applications* - Serge HABRAKEN - *Instrumental optics I* - Serge HABRAKEN	B2	Q1 10 20	 15 15	 - -		**5**
AERO0034-1	*ESA space technology course serie* (english language) - Gaëtan KERSCHEN	B2	Q2	25	25	-	**5**
MECA0127-1	*Active structures* (english language) - Christophe COLLETTE - Suppl : Gonçalo RODRIGUES	B2	Q1	26	26	-	**5**
SPAT0048-4	*Atmosphere of the Earth and Space Environment* (english language) - Denis GRODENT	B2	Q1	52	-	-	**5**
AERO0018-3	*Space experiment development* (english language) - Denis GRODENT, Jerôme LOICQ	B2	Q2	26	26	-	**5**
SPAT0033-1	*Astrophysics* (english language) - Pierre MAGAIN	B2	Q1	35	15	-	**5**
SPAT0073-1	*Space optics* (english language) - Jerôme LOICQ	B2	Q1	30	10	-	**5**

Computational mechanics

MECA0464-1	*Large deformation of solids* (english language) - JeanPhilippe PONTHOT - [60h Proj.]	B2	Q1	26	26	[+]	**5**
MECA0058-1	*Fracture mechanics, damage and fatigue* (english language) - Ludovic NOELS - [75h Proj.]	B2	Q1	30	10	[+]	**5**
MECA0062-1	*Vibration testing and experimental modal analysis* (english language) - JeanClaude GOLINVAL - [30h Proj.] **Prerequisite :** MECA0029-1 - Theory of vibration	B2	Q1	26	26	[+]	**5**
INFO0939-1	*High performance scientific computing* (english language) - Christophe GEUZAINE - [20h Proj.]	B2	Q1	30	15	[+]	**5**
MECA0027-1	*Structural and multidisciplinary optimization* (english language) - Pierre DUYSINX, Patricia TOSSINGS - [18h Proj.]	B2	Q1	30	12	[+]	**5**
MECA0470-1	*New methodsin computational mechanics* (english language) - Maarten ARNST, Eric BÉCHET, Ludovic NOELS - [40h Proj.]	B2	Q2	20	-	[+]	**5**
AERO0035-1	*Nonlinear vibrations of aerospace structures* (english language) - Gaëtan KERSCHEN - Suppl : JeanPhilippe NOËL	B2	Q1	26	26	-	**5**
MECA0031-2	*Kinematics and dynamics of mechanisms* (english language) - Olivier BRULS - [40h Proj.]	B2	Q2	30	20	[+]	**5**
MECA0010-1	*Reliability and stochastic modeling of engineering systems* (english language) - Maarten ARNST - [28h Proj.]	B2	Q1	16	16	[+]	**5**
MECA0524-1	*CAD & Geometric Algorithms* - Eric BÉCHET - [60h Proj.]	B2	Q1	20	20	[+]	**5**

[...] A maximum of 5 credits can be selected among the ISLV language courses organized in other Faculties or in the list below

LANG1957-1	*Dutch for Engineers, part 1* (dutch language) - Claudine COLIN	B2	Q1	36	-	-	**3**
LANG2978-1	*Dutch for engineer, part 2* - Claudine COLIN **Corequisite :**	B2	Q2	24	-	-	**2**

	LANG1957-1 - Néerlandais pour l'ingénieur, partim 1						
LANG1958-1	*German for engineer, Part 1* (german language) - Françoise CARL	B2	Q1	36	-	-	**3**
LANG2979-1	*German for engineers, part 2* - Françoise CARL, ISLV **Corequisite :** LANG1958-1 - Allemand pour l'ingénieur, partim 1	B2	Q2	24	-	-	**2**

Additional ECTS Master in aerospace engineering

Optional courses (B0 : 60Cr)

Each student¿s programme will be determined by the jury depending on their prior training. If an applicant does not meet certain prerequisites, his or her programme may include up to 60 additional course credits essentially taken from the list below : (B0 : 60Cr)

MECA0012-6	*Solid mechanics* - Laurent DUCHENE - [15h Proj.]	B0	Q2	26	26	[+]	**5**
MECA0002-1	*Applied Thermodynamics and Introduction to Heat Engines* - Vincent LEMORT	B0	Q1	26	26	-	**5**
MECA0445-2	*Heat transfer* (english language) - Pierre DEWALLEF, Vincent TERRAPON - [4h Labo., 9h Proj.]	B0	Q2	28	24	[+]	**5**
MECA0025-3	*Fluid Mechanics* - Eric DELHEZ - [30h Proj.]	B0	Q2	26	26	[+]	**5**
MATH0006-3	*Introduction to numerical analysis* (english language) - Quentin LOUVEAUX	B0	Q1	20	20	-	**4**
MECA0001-2	*Mechanics of materials* - JeanPierre JASPART - [2h Labo., 12h Proj.]	B0	Q1	27	25	[+]	**5**
LANG0039-2	*English 2, English for Engineering* (english language) - Christine FILOT, ISLV - [20h Proj.]	B0	TA	-	30	[+]	**3**
LANG0840-1	*French, S1 - 1er quadrimestre* - ISLV, Marielle MARÉCHAL	B0	Q1	-	-	-	**5**
SYST0002-2	*Introduction to signals and systems* - Guillaume DRION - [15h Proj.]	B0	Q1	26	26	[+]	**5**
MECA0444-1	*Mechanical design and machining* - Eric BÉCHET, JeanLuc BOZET, Pierre DUYSINX, Jean STUTO - [15h Labo., 11h Proj., 0,5d FW]	B0	Q2	30	-	[+]	**5**

[...] Choose maximum 13 credits to complete the curriculum