Block view of the study programme

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Block 1

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

MECA0462-2	*Materials selection* (english language) - Anne MERTENS, Davide RUFFONI - [30h Proj., 1d FW]	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	Q1	26	26	[+]	**5**
AERO0001-1	*Aerodynamics* (english language) - Thomas ANDRIANNE, Vincent TERRAPON - [2h Labo., 25h Proj.] **Prerequisite :** MECA0025-3 - Mécanique des fluides	Q1	27	25	[+]	**5**
MECA0031-2	*Kinematics and dynamics of mechanisms* (english language) - Olivier BRULS - [40h Proj.] **Corequisite :** MECA0036-2 - Finite Element Method	Q2	30	20	[+]	**5**

Thematics

Choose a thematic between "Aeronautics" and "Space engineering".

Aeronautics

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

Space engineering

SPAT0048-4	*Atmosphere of the Earth and Space Environment* (english language) - Denis GRODENT	Q2	52	-	-	**5**
AERO0018-3	*Space experiment development* (english language) - Jerôme LOICQ	Q2	26	26	-	**5**

Single focus

Professional focus in aerospace engineering

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	TA	30	-	[+]	**10**
AERO0025-1	*Satellite engineering* (english language) - Gaëtan KERSCHEN - [20h Proj.]	Q1	52	-	[+]	**5**
AERO0003-1	*Flight Dynamics and Control* (english language) - Christophe COLLETTE, Grigorios DIMITRIADIS	Q2	26	26	-	**5**

	Corequisite : APRI0004-1 - Aerospace design project AERO0001-1 - Aerodynamics					
AERO0014-1	*Aerospace propulsion* (english language) - - Suppl : Patrick HENDRICK **Corequisite :** AERO0001-1 - Aerodynamics	Q2	26	26	-	**5**
AERO0030-1	*Computational fluid dynamics* (english language) - Vincent TERRAPON - [10h Labo.] **Corequisite :** MECA0025-3 - Mécanique des fluides	Q2	30	20	[+]	**5**
	Notice : students enrolled in a Master's degree for the first time in 2018-2019 must follow the course in the 2nd quarter. Students already enrolled in a Master's degree in 2017-2018 must follow it in the 1st quarter.					

Block 2

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.

Compulsory Courses

ASTG0117-1	*Integration internship* (english language) - Pierre DEWALLEF **Corequisite :** ATFE0005-1 - Master thesis GEST3162-1 - Principles of management	TA	-	-	-	**5**
ATFE0005-1	*Master's thesis* (english language) - JeanPhilippe PONTHOT - [750h Proj.]	TA	-	-	[+]	**25**
GEST3162-1	*Principles of management* (english language) - Michael GHILISSEN, François PICHAULT	Q1	25	25	-	**5**

Thematics

Optional courses

Choose 25 credits from the list below:

[...] 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) - Georges DE PELSEMAEKER, Pierre DUYSINX, Liesbet GERIS, Grégoire LÉONARD, Quentin LOUVEAUX - [150h Proj.]	TA	-	-	[+]	**5**

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.]	Q2	26	26	[+]	**5**
MECA0155-2	*Dynamics of mechanical systems* - JeanClaude GOLINVAL - [5h Labo., 10h Proj.]	Q1	26	26	[+]	**5**
MECA0036-2	*Finite Element Method* (english language) - JeanPhilippe PONTHOT - [40h Proj.]	Q2	26	26	[+]	**5**

Aeronautics

AERO0032-1	*Aeroelasticity and experimental aerodynamics* (english language) - Thomas ANDRIANNE, Grigorios DIMITRIADIS **Prerequisite :** MECA0029-1 - Theory of vibration AERO0001-1 - Aerodynamics	Q1	26	26	-	**5**
AERO0015-1	*Mechanical design of turbomachinery* (english language) -	Q1	26	26	[+]	**5**

	OLINVAL - [30h Proj.] **Prerequisite :** MECA0029-1 - Theory of vibration					
MECA0502-1	*Mechanics of composites* (english language) - Michaël BRUYNEEL	Q1	26	26	-	**5**
MECA0032-1	(pas organisé en 2018-2019) *Flow in turbomachineries* (english language) - [60h Proj.] **Prerequisite :** AERO0001-1 - Aerodynamics AERO0030-1 - Computational fluid dynamics	TA	26	26	[+]	**5**
AERO0004-1	*Turbulent Flows* (english language) - Vincent TERRAPON - [40h Proj.]	Q1	26	26	[+]	**5**
AERO0033-1	*Aerothermodynamics of high-speed flows* (english language) - Grigorios DIMITRIADIS, Thierry MAGIN - [1d FW] **Prerequisite :** AERO0001-1 - Aerodynamics	Q2	26	26	[+]	**5**
MECA0023-1	*Advanced solid mechanics* (english language) - JeanPhilippe PONTHOT - [30h Proj.]	Q1	26	26	[+]	**5**
MECA0028-1	*Aeronautical structures* (english language) - Ludovic NOELS - [70h Proj.] **Corequisite :** APRI0004-1 - Aerospace design project	Q2	30	20	[+]	**5**
Space engineering						
AERO0024-1	*Astrodynamics* (english language) - Gaëtan KERSCHEN - [20h Proj.]	Q1	26	26	[+]	**5**
SPAT0032-2	*Remote sensing* (english language) - Christian BARBIER	Q1	30	30	-	**5**
AERO0026-1	*Lauch vehicles design and propulsion* (english language) - JeanLuc BOZET, Philippe NGENDAKUMANA	Q2	30	-	-	**5**
ELEN0008-1	*Principles of analog and digital telecommunications systems* - Marc VAN DROOGENBROECK	Q2	26	26	-	**5**
AERO0033-1	*Aerothermodynamics of high-speed flows* (english language) - Grigorios DIMITRIADIS, Thierry MAGIN - [1d FW] **Prerequisite :** AERO0001-1 - Aerodynamics	Q2	26	26	[+]	**5**
PHYS0048-1	*Coherent and incoherent optics* (english language) - *Coherent optics and lasers applications* - Serge HABRAKEN - *Instrumental optics I* - Serge HABRAKEN	Q1	 10 20	 15 15	 - -	**5**
AERO0034-1	*ESA space technology course serie* (english language) - Gaëtan KERSCHEN	Q2	25	25	-	**5**
MECA0127-1	*Active structures* (english language) - Christophe COLLETTE	Q1	26	26	-	**5**
SPAT0048-4	*Atmosphere of the Earth and Space Environment* (english language) - Denis GRODENT	Q2	52	-	-	**5**
AERO0018-3	*Space experiment development* (english language) - Jerôme LOICQ	Q2	26	26	-	**5**
Computational mechanics						
MECA0464-1	*Large deformation of solids* (english language) - JeanPhilippe PONTHOT - [60h Proj.]	Q1	26	26	[+]	**5**
MECA0058-1	*Fracture mechanics, damage and fatigue* (english language) - Ludovic NOELS - [75h Proj.]	Q1	30	10	[+]	**5**
MECA0062-1	*Vibration testing and experimental modal analysis* (english language) - JeanClaude GOLINVAL - [30h Proj.] **Prerequisite :** MECA0029-1 - Theory of vibration	Q1	26	26	[+]	**5**
INFO0939-1	*High performance scientific computing* (english language) - Christophe GEUZAINE - [20h Proj.]	Q1	30	15	[+]	**5**
MECA0027-1	*Structural and multidisciplinary optimization* (english language) -	Q1	30	12	[+]	**5**

	UYSINX, Patricia TOSSINGS - [18h Proj.]					
MECA0470-1	*New methodsin computational mechanics* (english language) - Maarten ARNST, Eric BÉCHET, Ludovic NOELS - [40h Proj.]	Q2	20	-	[+]	**5**
AERO0035-1	*Nonlinear vibrations of aerospace structures* (english language) - Gaëtan KERSCHEN, JeanPhilippe NOËL	Q1	26	26	-	**5**
MECA0010-1	*Reliability and stochastic modeling of engineering systems* (english language) - Maarten ARNST - [28h Proj.]	Q1	16	16	[+]	**5**
MECA0524-1	*CAD & Geometric Algorithms* - Eric BÉCHET - [60h Proj.]	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	Q1	36	-	-	**3**
LANG2978-1	*Dutch for engineer, part 2* - Claudine COLIN **Corequisite :** LANG1957-1 - Néerlandais pour l'ingénieur, partim 1	Q2	24	-	-	**2**
LANG1958-1	*German for engineer, Part 1* (german language) - Françoise CARL	Q1	36	-	-	**3**
LANG2979-1	*German for engineers, part 2* - Françoise CARL, ISLV **Corequisite :** LANG1958-1 - Allemand pour l'ingénieur, partim 1	Q2	24	-	-	**2**

Bloc d'aménagement du programme de l'année

Additional ECTS Master in aerospace engineering

Optional courses

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 :

MECA0012-6	*Solid mechanics* - Laurent DUCHENE - [15h Proj.]	Q2	26	26	[+]	**5**
MECA0002-1	*Applied Thermodynamics and Introduction to Heat Engines* - Vincent LEMORT	Q1	26	26	-	**5**
MECA0445-2	*Heat transfer* (english language) - Pierre DEWALLEF, Vincent TERRAPON - [4h Labo., 9h Proj.]	Q2	28	24	[+]	**5**
MECA0025-3	*Fluid Mechanics* - Eric DELHEZ - [30h Proj.]	Q2	26	26	[+]	**5**
MATH0006-3	*Introduction to numerical analysis* (english language) - Quentin LOUVEAUX	Q1	20	20	-	**4**
MECA0001-2	*Mechanics of materials* - JeanPierre JASPART - [2h Labo., 12h Proj.]	Q1	27	25	[+]	**5**
LANG0039-2	*English 2, English for Engineering* (english language) - Christine FILOT, ISLV - [20h Proj.]	TA	-	30	[+]	**3**
LANG0840-1	*French, S1 - 1er quadrimestre* - ISLV, Marielle MARÉCHAL	Q1	-	-	-	**5**
SYST0002-2	*Introduction to signals and systems* - Guillaume DRION - [15h Proj.]	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]	Q2	30	-	[+]	**5**
[...]	Choose maximum 13 credits to complete the curriculum					

Language

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

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