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 60 credits of the compulsory courses (including the master thesis and internship), 10 credits of an orientation, 20 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) - Davide RUFFONI - [30h Proj., 1d FW]	Q1	30	30	[+]	**5**
MECA0474-1	*Mechanical computer-Aided-Design* (english language) - Eric BÉCHET - [30h Proj.]	Q1	30	30	[+]	**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	30	30	[+]	**5**
AERO0001-1	*Aerodynamics* (english language) - Thomas ANDRIANNE, Vincent TERRAPON - [2h Labo., 25h Proj.] **Corequisite :** MECA0025-3 - Mécanique des fluides	Q2	30	28	[+]	**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	30	30	[+]	**5**
MECA0028-1	*Aeronautical structures* (english language) - Ludovic NOELS - [70h Proj.] **Corequisite :** APRI0004-1 - Aerospace design project	Q2	30	20	[+]	**5**

Space engineering

SPAT0048-4	*Atmosphere of the earth and space environment* (english language) - JeanClaude GÉRARD, Denis GRODENT	Q1	45	15	-	**5**
AERO0018-3	*Space experiment development* (english language) - Jerôme LOICQ	Q2	30	30	-	**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 MECA0474-1 - Mechanical Computer-Aided-Design	TA	30	-	[+]	**10**

AERO0025-1	*Satellite engineering* (english language) - Gaëtan KERSCHEN - [20h Proj.]	Q1	60	-	[+]	**5**
AERO0003-1	*Flight Dynamics and Control* (english language) - Grigorios DIMITRIADIS **Corequisite :** APRI0004-1 - Aerospace design project AERO0001-1 - Aerodynamics	Q2	30	30	-	**5**
AERO0014-1	*Aerospace propulsion* (english language) - Olivier LÉONARD **Corequisite :** AERO0001-1 - Aerodynamics	Q2	30	30	-	**5**

Research focus

Aimed at students who have taken this focus in 2015-2016.

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, Thierry PIRONET, Didier VAN CAILLIE - Suppl : Fanny FOX	Q1	25	25	-	**5**

Thematics

Optional courses

Choose 20 credits from the list below :

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.

PROJ0011-1	*Personal student project* (english language) - Bernard BOIGELOT, COLLÉGIALITÉ - [150h Proj.]	TA	-	-	[+]	**5**
MECA0025-3	*Fluid Mechanics* - Eric DELHEZ - [30h Proj.]	Q2	30	30	[+]	**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**

[...] 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 :**	Q2	24	-	-	**2**

LANG1958-1 - Allemand pour l'ingénieur, partim 1

Aeronautics

AERO0032-1	*Aeroelasticity and experimental aerodynamics* (english language) - Thomas ANDRIANNE, Grigorios DIMITRIADIS **Prerequisite :** MECA0029-1 - Theory of vibration AERO0001-1 - Aerodynamics	Q1	30	30	-	**5**
AERO0015-1	*Mechanical design of turbomachinery* (english language) - JeanClaude GOLINVAL - [30h Proj.] **Prerequisite :** MECA0029-1 - Theory of vibration	Q1	30	30	[+]	**5**
MECA0502-1	*Mechanics of composites* (english language) - Michaël BRUYNEEL	Q1	30	30	-	**5**
MECA0032-1	*Flow in turbomachineries* (english language) - Olivier LÉONARD - [60h Proj.] **Prerequisite :** AERO0001-1 - Aerodynamics **Corequisite :** AERO0030-1 - Computational fluid dynamics	TA	30	30	[+]	**5**
AERO0004-1	*Turbulent Flows* (english language) - Vincent TERRAPON - [40h Proj.] **Corequisite :** AERO0030-1 - Computational fluid dynamics	Q1	30	30	[+]	**5**
AERO0033-1	*Aerothermodynamics of high-speed flows* (english language) - Grigorios DIMITRIADIS, Thierry MAGIN - [1d FW] **Prerequisite :** AERO0001-1 - Aerodynamics	Q2	30	30	[+]	**5**
MECA0023-1	*Advanced solid mechanics* (english language) - JeanPhilippe PONTHOT - [30h Proj.]	Q1	30	30	[+]	**5**
MECA0028-1	*Aeronautical structures* (english language) - Ludovic NOELS - [70h Proj.] **Corequisite :** APRI0004-1 - Aerospace design project	Q2	30	20	[+]	**5**

Space engineering

ASTR0004-2	*Astrophysics and Space Techniques* (english language) - Jean SURDEJ - [5h Labo., 5h Proj., 5d FW]	TA	30	15	[+]	**5**
AERO0024-1	*Astrodynamics* (english language) - Gaëtan KERSCHEN - [20h Proj.]	Q1	30	30	[+]	**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	30	30	-	**5**
AERO0033-1	*Aerothermodynamics of high-speed flows* (english language) - Grigorios DIMITRIADIS, Thierry MAGIN - [1d FW] **Prerequisite :** AERO0001-1 - Aerodynamics	Q2	30	30	[+]	**5**
PHYS0048-1	*Coherent and incoherent optics* (english language) - Serge HABRAKEN	Q1	30	30	-	**5**
AERO0034-1	*ESA space technology course serie* (english language) - Gaëtan KERSCHEN	Q2	25	25	-	**5**
MECA0127-1	(pas organisé en 2016-2017) *Active Structure* (english language) - André PREUMONT	Q1	30	30	-	**5**
SPAT0048-4	*Atmosphere of the earth and space environment* (english language) - JeanClaude GÉRARD, Denis GRODENT	Q1	45	15	-	**5**
AERO0018-3	*Space experiment development* (english language) - Jerôme LOICQ	Q2	30	30	-	**5**

Computational mechanics

MECA0464-1	*Large deformation of solids* (english language) - JeanPhilippe PONTHOT - [60h Proj.]	Q1	30	30	[+]	**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	30	30	[+]	**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) - Pierre DUYSINX, Patricia TOSSINGS - [18h Proj.]	Q1	30	12	[+]	**5**
INFO2046-2	*Computational geometry* (english language) - Eric BÉCHET - [95h Proj.]	Q1	25	-	[+]	**5**
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	30	30	-	**5**
MECA0010-1	*Reliability and stochastic modeling of engineering systems* (english language) - Maarten ARNST - [28h Proj.]	Q2	16	16	[+]	**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

Single focus

Professional focus in aerospace engineering

Compulsory Courses

AERO0025-1	*Satellite engineering* (english language) - Gaëtan KERSCHEN - [20h Proj.]	Q1	60	-	[+]	**5**
AERO0030-1	*Computational fluid dynamics* (english language) - Vincent TERRAPON - [10h Labo.] **Prerequisite :** MECA0025-3 - Mécanique des fluides	Q1	30	20	[+]	**5**

Research focus

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	30	30	[+]	**5**
MECA0002-1	*Applied Thermodynamics and Introduction to Heat Engines* - Olivier LÉONARD	Q1	30	30	-	**5**
MECA0445-2	*Heat transfer* (english language) - Pierre DEWALLEF, Vincent TERRAPON - [4h Labo., 9h Proj.]	Q2	30	26	[+]	**5**
MECA0025-3	*Fluid Mechanics* - Eric DELHEZ - [30h Proj.]	Q2	30	30	[+]	**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	30	28	[+]	**5**
LANG0039-2	*English 2* (english language) - Christine FILOT, ISLV - [20h Proj.]	TA	-	30	[+]	**3**
LANG0840-1	*French, S1 - 1er quadrimestre* - ISLV, Marielle MARÉCHAL	Q1	-	-	-	**5**
SYST0002-2	*Modelling and analysis of systems* - Guillaume DRION - [15h Proj.]	Q1	30	30	[+]	**5**
MECA0444-1	*Mechanical design and machining* - Jean STUTO - Suppl : Eric BÉCHET, JeanLuc BOZET, Olivier BRULS, Pierre DUYSINX - [15h Labo., 11h Proj., 0,5d FW]	Q2	30	-	[+]	**5**

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