

Vue cycle du programme des cours

B1 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 from the core curriculum (B1 : 20Cr, B2 : 35Cr)

MECA0462-2	<i>Materials selection</i> (anglais) - Anne MERTENS, Davide RUFFONI - [30h Proj., 1j T. t.]	B1	Q1	26	26	[+]	5
MECA0029-1	<i>Theory of vibration</i> (anglais) - Loïc SALLES - [30h Proj.] Corequis : MECA0155-2 - Dynamique des systèmes mécaniques	B1	Q1	26	26	[+]	5
AERO0001-1	<i>Aerodynamics</i> (anglais) - Thomas ANDRIANNE, Vincent TERRAPON - [2h Labo., 25h Proj.]	B1	Q1	27	25	[+]	5
AERO0036-1	<i>Spacecraft control</i> (anglais) - Christophe COLLETTE	B1	Q2	26	26	-	5
ATFE0005-1	<i>Master thesis and internship</i> (anglais) - <i>Master thesis</i> - Gaëtan KERSCHEN - [750h Proj.] - <i>Integration internship</i> - Gaëtan KERSCHEN	B2	TA			[+]	30
GEST3162-1	<i>Principles of management</i> (anglais) - Michaël PARMENTIER, Willem STANDAERT - [25h Proj.]	B2	Q1	30	-	[+]	5

Optional courses from the core curriculum (B1 : 10Cr, B2 : 25Cr)

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

Aeronautics (B1 : 10Cr)

MECA0023-1	<i>Advanced solid mechanics</i> (anglais) - JeanPhilippe PONTHOT - [30h Proj.]	B1	Q1	26	26	[+]	5
MECA0028-1	<i>Aeronautical structures</i> (anglais) - Ludovic NOELS - [70h Proj.]	B1	Q2	30	20	[+]	5

Space engineering (B1 : 10Cr)

AERO0037-1	<i>Space optical instrumentation</i> (anglais) - Denis GRODENT, Jérôme LOICQ - [1j T. t.]	B1	Q1	40	12	[+]	5
AERO0038-1	<i>Thermal analysis of space systems</i> (anglais) - Lionel JACQUES	B1	Q2	-	-	-	5

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	<i>Mécanique des fluides</i> - Eric DELHEZ - [30h Proj.]	B2	Q2	26	26	[+]	5
MECA0155-2	<i>Dynamique des systèmes mécaniques</i> - Loïc SALLES - [20h Proj.]	B2	Q1	26	26	[+]	5
MECA0036-2	<i>Finite Element Method</i> (anglais) - 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 or from the UNIC course catalog.

[...] 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

Aeronautics

AERO0032-1	<i>Aeroelasticity and experimental aerodynamics</i> (anglais) -	B2	Q1	26	26	-	5
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	NDRIANNE								
	Prérequis :								
	AERO0001-1 - Aerodynamics								
	MECA0029-1 - Theory of vibration								
AERO0015-1	<i>Mechanical design of turbomachinery</i> (anglais) - Loïc SALLES - [30h Proj.]	B2	Q1	26	26	[+]			5
	Prérequis :								
	MECA0029-1 - Theory of vibration								
MECA0502-1	<i>Mechanics of composites</i> (anglais) - Michaël BRUYNEEL	B2	Q1	26	26	-			5
MECA0032-1	<i>Flow in turbomachines</i> (anglais) - Koen HILLEWAERT - [60h Proj.]	B2	Q1	26	26	[+]			5
	Prérequis :								
	AERO0030-1 - Computational fluid dynamics								
	AERO0001-1 - Aerodynamics								
AERO0004-1	<i>Turbulent Flows</i> (anglais) - Vincent TERRAPON - [40h Proj.]	B2	Q1	26	26	[+]			5
AERO0033-1	<i>Aerothermodynamics of high-speed flows</i> (anglais) - Koen HILLEWAERT, Thierry MAGIN - [1j T. t.]	B2	Q1	26	26	[+]			5
	Prérequis :								
	AERO0001-1 - Aerodynamics								
MECA0023-1	<i>Advanced solid mechanics</i> (anglais) - JeanPhilippe PONTHOT - [30h Proj.]	B2	Q1	26	26	[+]			5
MECA0028-1	<i>Aeronautical structures</i> (anglais) - Ludovic NOELS - [70h Proj.]	B2	Q2	30	20	[+]			5
Space engineering									
AERO0024-1	<i>Astrodynamics</i> (anglais) - Gaëtan KERSCHEN - [20h Proj.]	B2	Q1	26	26	[+]			5
SPAT0032-2	<i>Remote sensing</i> (anglais) - François JONARD	B2	Q1	20	20	-			5
ELEN0008-1	<i>Principes des télécommunications analogiques et numériques</i> - Marc VAN DROOGENBROECK	B2	Q2	26	26	-			5
PHYS0048-1	<i>Coherent and incoherent optics</i> (anglais) - <i>Coherent optics and lasers applications</i> - Serge HABRAKEN - <i>Instrumental optics I</i> - Serge HABRAKEN	B2	Q1	10 20	15 15	- -			5
AERO0034-1	<i>ESA space technology course serie</i> (anglais) - Gaëtan KERSCHEN	B2	Q2	25	25	-			5
MECA0127-1	<i>Active structures</i> (anglais) - Christophe COLLETTE	B2	Q1	26	26	-			5
SPAT0048-4	<i>Earth's atmospheric and space environment</i> (anglais) - <i>Introduction to atmospheric physics</i> - Denis GRODENT - <i>Space environment</i> - Denis GRODENT	B2	Q1	37 15	- -	- -			5
SPAT0033-1	<i>Astrophysics</i> (anglais) - Michaël DE BECKER	B2	Q1	35	10	-			5
AERO0037-1	<i>Space optical instrumentation</i> (anglais) - Denis GRODENT, Jérôme LOICQ - [1j T. t.]	B2	Q1	40	12	[+]			5
AERO0038-1	<i>Thermal analysis of space systems</i> (anglais) - Lionel JACQUES	B2	Q2	-	-	-			5
Computational mechanics									
MECA0464-1	<i>Large deformation of solids</i> (anglais) - Romain BOMAN, JeanPhilippe PONTHOT - [60h Proj.]	B2	Q1	26	26	[+]			5
MECA0058-1	<i>Fracture mechanics, damage and fatigue</i> (anglais) - Ludovic NOELS - [75h Proj.]	B2	Q1	30	10	[+]			5
MECA0062-1	<i>Vibration testing and experimental modal analysis</i> (anglais) - Loïc SALLES - [30h Proj.]	B2	Q1	26	26	[+]			5
	Prérequis :								
	MECA0029-1 - Theory of vibration								
INFO0939-1	<i>High performance scientific computing</i> (anglais) - Christophe GEUZAIN - [20h Proj.]	B2	Q1	30	15	[+]			5

MECA0027-1	<i>Structural and multidisciplinary optimization</i> (anglais) - Pierre DUYSINX, Patricia TOSSINGS - [18h Proj.]	B2	Q1	30	12	[+]	5
MECA0470-1	<i>New methods in computational mechanics and physics</i> (anglais) - Maarten ARNST, Eric BÉCHET, Ludovic NOELS - [40h Proj.]	B2	Q2	20	-	[+]	5
AERO0035-1	<i>Nonlinear vibrations of aerospace structures</i> (anglais) - Gaëtan KERSCHEN	B2	Q1	26	26	-	5
MECA0031-2	<i>Kinematics and dynamics of mechanisms</i> (anglais) - Olivier BRULS - [40h Proj.]	B2	Q2	30	20	[+]	5
MECA0010-1	<i>Uncertainty quantification and stochastic modeling</i> (anglais) - Maarten ARNST - [28h Proj.]	B2	Q1	16	16	[+]	5
MECA0524-1	<i>CAD & Geometric Algorithms</i> - 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	<i>Néerlandais pour l'ingénieur, partim 1</i> (néerlandais) - Claudine COLIN	B2	Q1	36	-	-	3
LANG2978-1	<i>Néerlandais pour l'ingénieur, partim 2</i> (néerlandais) - Claudine COLIN Corequis : LANG1957-1 - Néerlandais pour l'ingénieur, partim 1	B2	Q2	24	-	-	2
LANG1958-1	<i>Allemand pour l'ingénieur, partim 1</i> (allemand) - Françoise CARL	B2	Q1	36	-	-	3
LANG2979-1	<i>Allemand pour l'ingénieur, partim 2</i> (allemand) - Françoise CARL Corequis : LANG1958-1 - Allemand pour l'ingénieur, partim 1	B2	Q2	24	-	-	2

Compulsory courses within the focus (B1 : 20Cr)

AERO0025-1	<i>Satellite engineering</i> (anglais) - Gaëtan KERSCHEN	B1	Q1	52	-	-	5
AERO0003-1	<i>Flight Dynamics and Control</i> (anglais) - Christophe COLLETTE, Grigorios DIMITRIADIS Corequis : AERO0036-1 - Spacecraft control	B1	Q2	26	26	-	5
AERO0014-1	<i>Aerospace propulsion</i> (anglais) - Koen HILLEWAERT Corequis : AERO0001-1 - Aerodynamics	B1	Q2	26	26	-	5
AERO0030-1	<i>Computational fluid dynamics</i> (anglais) - Vincent TERRAPON - [10h Labo.]	B1	Q2	30	20	[+]	5

Optional courses within the focus (B1 : 10Cr)

Choose one course between : (B1 : 10Cr)

APRI0004-1	<i>Aeronautics design project</i> (anglais) - Thomas ANDRIANNE, Ludovic NOELS - [10h Labo., 260h Proj., 5j T. t.] Corequis : AERO0001-1 - Aerodynamics MECA0036-2 - Finite Element Method AERO0014-1 - Aerospace propulsion	B1	TA	30	-	[+]	10
APRI0011-1	<i>Space system design project</i> (anglais) - Lionel JACQUES Corequis : MECA0036-2 - Finite Element Method AERO0037-1 - Space optical instrumentation AERO0038-1 - Thermal analysis of space systems AERO0025-1 - Satellite engineering	B1	TA	-	-	-	10

Crédits supplémentaires Master en ingénieur civil en aérospatiale

Optional courses (B0 : 60Cr)

Each student's program will be determined by the admissions committee based on their previous education. If an applicant does not meet certain prerequisites, their program will include up to 60 additional course credits, mainly from the list below.

For holders of a master's degree in industrial sciences or a master's degree in industrial engineering (all specializations), the volume of the supplementary program may be reduced to 15 credits. (B0 : 60Cr)

MECA0012-6	<i>Mécanique des solides</i> - Laurent DUCHENE - [15h Proj.]	B0	Q2	26	26	[+]	5
MECA0002-1	<i>Thermodynamique appliquée et introduction aux machines thermiques</i> - Vincent LEMORT	B0	Q1	26	26	-	5
MECA0445-2	<i>Heat transfer</i> (anglais) - Pierre DEWALLEF, Vincent TERRAPON - [9h Proj.]	B0	Q2	28	24	[+]	5
MECA0025-3	<i>Mécanique des fluides</i> - Eric DELHEZ - [30h Proj.]	B0	Q2	26	26	[+]	5
MATH0006-3	<i>Introduction to numerical analysis</i> (anglais) - Quentin LOUVEAUX	B0	Q1	20	20	-	4
MECA0001-2	<i>Mécanique des matériaux</i> - JeanFrançois DEMONCEAU, Laurent DUCHENE - [2h Labo., 12h Proj.]	B0	Q1	27	25	[+]	5
LANG0039-2	<i>Anglais 2, English for Engineering</i> (anglais) - Clara BRERETON, Véronique DOPPAGNE, Pascale DRIANNE, Stéphane GHIJSEN, Philippe JEUKENNE, Martin POLSON, David VANMANSHOVEN - [20h Proj.]	B0	TA	-	30	[+]	3
LANG0840-1	<i>Français, S1 - 1er quadrimestre</i> - ISLV, Marielle MARÉCHAL	B0	Q1	-	-	-	5
SYST0002-2	<i>Introduction aux signaux et systèmes</i> - Guillaume DRION, Alessio FRANCI - [15h Proj.]	B0	Q2	26	26	[+]	5
MECA0444-1	<i>Conception mécanique</i> - Eric BÉCHET, Pierre DUYSINX - [15h Labo., 11h Proj., 0,5j T. t.]	B0	Q2	30	-	[+]	5
PHYS0904-4	<i>Physique des matériaux</i> - Luc COURARD, Anne MERTENS - [1j T. t.]	B0	Q2	26	26	[+]	5