

Block view of the study programme

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Block 1

Depending on your educational background or depending on the focus, it is possible that the prerequisites / corequisites for the 1st year of the programme are presented in the block 2. You are therefore invited to read through the list of courses in block 2 even if you are registering for the first time in this master.

As part of the Master's degree in Mechanical Engineering, each student must take or validate the 70 credits of the common core (including internship and Master's thesis), 10 credits of optional courses, 10 credits from the Mechanical Engineering, Mechatronics 2, Computational Mechanics 2 and Vehicles and Transport lists or from the block 1 programme, and 30 credits of the research focus.

Ideally, students starting the Master's programme will have acquired the skills and knowledge corresponding to the 40 credits of technical courses specific to the "Mechanical" field, organised within the Bachelor's degree in Civil Engineering.

Core curriculum compulsory courses

MECA0029-1	<i>Theory of vibration</i> (english language) - Loïc SALLES - [30h Proj.] Corequisite : MECA0036-2 - Finite Element Method MECA0155-2 - Dynamique des systèmes mécaniques	Q1	26	26	[+]	5
MECA0462-2	<i>Materials selection</i> (english language) - Anne MERTENS, Davide RUFFONI - [30h Proj., 1d FW]	Q1	26	26	[+]	5
GEST3162-1	<i>Principles of management</i> (english language) - Michaël PARMENTIER, Willem STANDAERT - [25h Proj.]	Q1	30	-	[+]	5
MECA0018-2	<i>Manufacturing processes</i> (english language) - Yves MARCHAL - [15h Labo., 11h Proj., 0,5d FW]	Q2	30	-	[+]	5
SYST0022-1	<i>Linear Systems Design</i> (english language) - Guillaume DRION, Pierre SACRÉ - [15h Proj.]	Q2	26	26	[+]	5

[...] Choose one course from PROJ0022-1 and PROJ0023-1.

PROJ0022-1	<i>Integrated mechanical engineering project</i> - <i>Advanced mechanical design</i> - Pierre DUPONT - <i>Integrated mechanical engineering project</i> - Maarten ARNST, Eric BÉCHET, Olivier BRULS, Christophe COLLETTE, Pierre DUYSINX, Tristan GILET, Loïc SALLES, Jean STUTO - [250h Proj., 5d FW] Prerequisite : MECA0444-1 - Conception mécanique Corequisite : MECA0018-2 - Manufacturing processes MECA0462-2 - Materials selection	TA	30	15	-	15
PROJ0023-1	<i>Integrated project in mechanical engineering (Service Learning)</i> - <i>Advanced mechanical design</i> - Pierre DUPONT - <i>Integrated project in mechanical engineering</i> - Maarten ARNST, Eric BÉCHET, Olivier BRULS, Christophe COLLETTE, Pierre DUYSINX, Tristan GILET, Loïc SALLES, Jean STUTO - [250h Proj., 5d FW]	TA	30	15	-	15

Common core courses

Choose courses totalling 10 credits out of the following :

Students who have not followed the courses MECA0155-2 and MECA0036-2 from the "Mechanics" option of the bachelor in civil engineering programme or acquired the equivalent knowledge and skills have to choose in priority these two courses in their study programme ; these courses are corequisites of compulsory courses of the master.

MECA0155-2	<i>Dynamics of mechanical systems</i> - Loïc SALLES - [20h Proj.]	Q1	26	26	[+]	5
MECA0036-2	<i>Finite Element Method</i> (english language) - JeanPhilippe PONTHOT - [40h Proj.]	Q2	26	26	[+]	5
MECA0027-1	<i>Structural and multidisciplinary optimization</i> (english language) - Pierre DUYSINX, Patricia TOSSINGS - Suppl : Michaël BRUYNEEL - [18h Proj.]	Q1	30	12	[+]	5

Msc. in Mechanical Engineering, professional focus in materials and manufacturing

Corequisite :

MECA0155-2 - Dynamique des systèmes mécaniques

MECA0036-2 - Finite Element Method

MECA0031-2	<i>Kinematics and dynamics of mechanisms</i> (english language) - Olivier BRULS - [40h Proj.]	Q2	30	20	[+]	5
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Corequisite :

MECA0155-2 - Dynamique des systèmes mécaniques

MECA0036-2 - Finite Element Method

MECA0023-1	<i>Advanced solid mechanics</i> (english language) - JeanPhilippe PONTHOT - [30h Proj.]	Q1	26	26	[+]	5
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Corequisite :

MECA0155-2 - Dynamique des systèmes mécaniques

MECA0036-2 - Finite Element Method

MECA0010-1	<i>Uncertainty quantification and stochastic modelling</i> (english language) - Maarten ARNST - [28h Proj.]	Q1	16	16	[+]	5
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Corequisite :

MECA0155-2 - Dynamique des systèmes mécaniques

MECA0036-2 - Finite Element Method

Focus courses

Choose 10 credits among:

MECA0139-1	<i>Additive manufacturing and 3D printing</i> (english language) - Anne MERTENS	Q1	26	26	-	5
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MECA0473-1	<i>Metallic materials engineering</i> - Anne MERTENS	Q1	26	26	-	5
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MECA0502-1	<i>Mechanics of composites</i> (english language) - Michaël BRUYNEEL	Q1	26	26	-	5
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Block 2

Core curriculum compulsory courses

ATFE0013-1	<i>Master thesis and internship</i>	TA				30
	- Master thesis - Tristan GILET - [750h Proj.]		-	-	[+]	
	- Professional integration internship - Eric BÉCHET		-	-	-	

Prerequisite :
 MECA0036-2 - Finite Element Method
 MECA0155-2 - Dynamique des systèmes mécaniques

Common core courses

Choose courses for a total of 10 credits from the Mechanical Engineering, Mechatronics 2, Computational Mechanics 2 and Vehicles and Transport lists, or from the block 1 programme.

Students who have not followed the MECA0444-1 course in the ¿Mechanics¿ option of the Civil Engineering programme or acquired the corresponding knowledge and skills must first incorporate this course into their programme; this course is a co-requisite for the compulsory courses for ¿Mechanical Engineering¿ and ¿Sustainable Automotive Engineering¿ focuses.

MECA0444-1	<i>Mechanical design</i> - Eric BÉCHET, Pierre DUYSINX, Jean STUTO - [15h Labo., 11h Proj., 0,5d FW]	Q2	30	-	[+]	5
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Language module

[...] Maximum 5 credits from the language courses programme organised by ISLV in other faculties or from the restricted list below

LANG1957-1	<i>Dutch for Engineers, part 1</i> (dutch language) - Claudine COLIN	Q1	36	-	-	3
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LANG1958-1	<i>German for Engineers, Part 1</i> (german language) - Françoise CARL	Q1	36	-	-	3
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LANG2978-1	<i>Dutch for Engineers, part 2</i> (dutch language) - Claudine COLIN	Q2	24	-	-	2
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Corequisite :

LANG1957-1 - Néerlandais pour l'ingénieur, partim 1

LANG2979-1	<i>German for Engineers, part 2</i> (german language) - Françoise CARL	Q2	24	-	-	2
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Corequisite :

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

Mechanical engineering

MECA0473-1	<i>Metallic materials engineering</i> - Anne MERTENS	Q1	26	26	-	5
MECA0139-1	<i>Additive manufacturing and 3D printing</i> (english language) - Anne MERTENS	Q1	26	26	-	5
MECA0035-1	(pas organisé en 2025-2026) <i>Lubrication and tribology</i>	Q1	26	26	-	5
MECA0006-1	<i>Cooling and low-temperature heating systems</i> (english language) - Vincent LEMORT - [4h Proj., 1d FW]	Q2	26	26	[+]	5
CHIM0699-2	<i>Life cycle assessment - Ecodesign</i> (english language) - Angélique LÉONARD	Q1	10	30	-	3
MECA0502-1	<i>Mechanics of composites</i> (english language) - Michaël BRUYNEEL	Q1	26	26	-	5
MECA0532-1	<i>Turbomachines</i> - Koen HILLEWAERT	Q1	26	26	-	5
MECA0533-1	<i>Technology of offshore wind structures</i> (english language) - Timothée PIRE	Q1	26	26	-	5
Prerequisite :						
MECA0462-2 - Materials selection						
MECA0155-2 - Dynamique des systèmes mécaniques						
MECA0534-1	<i>Fluid structures interactions of offshore environment</i> (english language) - Thomas ANDRIANNE - [12h Labo.]	Q1	20	16	[+]	5
Prerequisite :						
MECA0025-3 - Mécanique des fluides						
MECA0029-1 - Theory of vibration						
MECA0535-1	<i>Structural health monitoring</i> (english language) - Wout WEIJTJENS	Q1	26	26	-	5
Prerequisite :						
MECA0029-1 - Theory of vibration						

Mecatronic 2

ELEC0055-2	<i>Element of power Electronics, Part A</i> (english language) - Fabrice FREBEL	Q1	30	6	-	3
MECA0517-1	<i>Advanced industrial robotics</i> (english language) - Olivier BRULS - [10h Proj.]	Q1	30	20	[+]	5
INFO0948-2	<i>Introduction to intelligent robotics</i> (english language) - Pierre SACRÉ - [80h Proj.]	Q2	30	4	[+]	5
INFO0064-2	<i>Embedded systems</i> (english language) - Bernard BOIGELOT	Q1	25	20	-	3
Corequisite :						
INFO2055-1 - Embedded systems project						
INFO2055-1	<i>Embedded systems project</i> (english language) - Bernard BOIGELOT - [60h Proj.]	Q2	-	-	[+]	2
Corequisite :						
INFO0064-2 - Embedded systems						
GBIO0012-2	<i>Biomechanics</i> (english language) - Davide RUFFONI - [1d FW]	Q1	26	26	[+]	5
MECA0516-1	<i>Mechanical properties of biological and bioinspired materials</i> (english language) - Davide RUFFONI - [4h Labo.]	Q1	26	22	[+]	5
GBIO0022-1	<i>Biomimicry</i> (english language) - Philippe COMPÈRE, Tristan GILET, Davide RUFFONI - [45h Proj.]	TA	15	-	[+]	5
MECA0008-1	<i>Microfluidics</i> (english language) - Tristan GILET - [16h Labo., 14h Proj.]	Q2	22	8	[+]	5
PROT0430-3	<i>Biomedical robotics and active prostheses</i> (english language) - Olivier BRULS	Q1	15	10	-	3
MECA0127-1	<i>Active structures</i> (english language) - Christophe COLLETTE	Q1	26	26	-	5
Prerequisite :						
SYST0022-1 - Linear Systems Design						

Computational mechanics 2

MECA0464-1	<i>Large deformation of solids</i> (english language) - Romain BOMAN, JeanPhilippe PONTHOT - [60h Proj.]	Q1	26	26	[+]	5
MECA0058-1	<i>Fracture mechanics, damage and fatigue</i> (english language) - Ludovic NOELS - [75h Proj.]	Q1	30	10	[+]	5
MECA0062-1	<i>Vibration testing and experimental modal analysis</i> (english language) - Loïc SALLES - [30h Proj.] Prerequisite : MECA0029-1 - Theory of vibration	Q1	26	26	[+]	5
MECA0524-1	<i>CAD & Geometric Algorithms</i> - Eric BÉCHET - [60h Proj.]	Q1	20	20	[+]	5
AERO0015-1	<i>Mechanical design of turbomachinery</i> (english language) - Loïc SALLES - [30h Proj.]	Q1	26	26	[+]	5

Vehicles and transport

MECA0501-1	<i>Thermal Energy Management in vehicles</i> (english language) - Vincent LEMORT - [1d FW]	Q1	26	26	[+]	5
MECA0063-1	<i>Vehicle architecture and components</i> (english language) - Emmanuel TROMME - [30h Proj.]	Q2	30	30	[+]	5
GCIV2066-1	<i>Fundamentals of transportation : transport planning</i> (english language) - Mario COOLS	Q1	15	15	-	2
MECA0527-1	<i>Electric, hybrid and fuel cell vehicles</i> (english language) - Pierre DUYSINX - [5h Labo., 15h Proj.]	Q1	30	10	[+]	5

[...] Courses from B1

[...] Maximum 5 credits in the list of courses from other master's degrees in the faculty of Applied Sciences or du catalogue UNIC.

Focus courses

Choose 20 credits from:

MECA0516-1	<i>Mechanical properties of biological and bioinspired materials</i> (english language) - Davide RUFFONI - [4h Labo.]	Q1	26	22	[+]	5
GBIO0012-2	<i>Biomechanics</i> (english language) - Davide RUFFONI - [1d FW]	Q1	26	26	[+]	5
MECA0464-1	<i>Large deformation of solids</i> (english language) - Romain BOMAN, JeanPhilippe PONTHOT - [60h Proj.]	Q1	26	26	[+]	5
MECA0058-1	<i>Fracture mechanics, damage and fatigue</i> (english language) - Ludovic NOELS - [75h Proj.]	Q1	30	10	[+]	5

Bloc d'aménagement du programme de l'année

Bridging courses Master in mechanical engineering

Optional courses

[...] Choose up to 30 credits from the following list:

MECA0036-2	<i>Finite Element Method</i> (english language) - JeanPhilippe PONTHOT - [40h Proj.]	Q2	26	26	[+]	5
MECA0155-2	<i>Dynamics of mechanical systems</i> - Loïc SALLES - [20h Proj.]	Q1	26	26	[+]	5
MECA0012-6	<i>Solid mechanics</i> - Laurent DUCHENE - [15h Proj.]	Q2	26	26	[+]	5
MECA0444-1	<i>Mechanical design</i> - Eric BÉCHET, Pierre DUYSINX, Jean STUTO - [15h Labo., 11h Proj., 0,5d FW]	Q2	30	-	[+]	5

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MECA0002-1	<i>Applied Thermodynamics and Introduction to Heat Engines</i> - Vincent LEMORT	Q1	26	26	-	5
MECA0445-2	<i>Heat transfer</i> (english language) - Pierre DEWALLEF, Vincent TERRAPON - [9h Proj.]	Q2	28	24	[+]	5
MATH0006-3	<i>Introduction to numerical analysis</i> (english language) - Quentin LOUVEAUX	Q1	20	20	-	4
MECA0001-2	<i>Mechanics of materials</i> - JeanFrançois DEMONCEAU, Laurent DUCHENE - [2h Labo., 12h Proj.]	Q1	27	25	[+]	5
LANG0039-2	<i>English 2, English for Engineering</i> (english language) - Clara BRERETON, Véronique DOPPAGNE, Pascale DRIANNE, Stéphane GHIJSEN, Philippe JEUKENNE, Martin POLSON, David VANMANSHOVEN - [20h Proj.]	TA	-	30	[+]	3
LANG0840-1	<i>French, S1 - 1er quadrimestre</i> - ISLV, Marielle MARÉCHAL	Q1	-	-	-	5
SYST0002-2	<i>Introduction to signals and systems</i> - Guillaume DRION, Alessio FRANCI - [15h Proj.]	Q2	26	26	[+]	5
PHYS0904-4	<i>Physics of materials</i> - Luc COURARD, Anne MERTENS - [1d FW]	Q2	26	26	[+]	5
MECA0025-3	<i>Fluid Mechanics</i> - Eric DELHEZ - [30h Proj.]	Q2	26	26	[+]	5

Bridging courses Master in mechanical engineering

Notice : 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 credits of bridging courses, essentially taken from the list below :

Optional courses

[...] Choose 31 to 60 credits from:

MECA0036-2	<i>Finite Element Method</i> (english language) - JeanPhilippe PONTHOT - [40h Proj.]	Q2	26	26	[+]	5
MECA0155-2	<i>Dynamics of mechanical systems</i> - Loïc SALLES - [20h Proj.]	Q1	26	26	[+]	5
MECA0012-6	<i>Solid mechanics</i> - Laurent DUCHENE - [15h Proj.]	Q2	26	26	[+]	5
MECA0444-1	<i>Mechanical design</i> - Eric BÉCHET, Pierre DUYSINX, Jean STUTO - [15h Labo., 11h Proj., 0,5d FW]	Q2	30	-	[+]	5
MECA0002-1	<i>Applied Thermodynamics and Introduction to Heat Engines</i> - Vincent LEMORT	Q1	26	26	-	5
MECA0445-2	<i>Heat transfer</i> (english language) - Pierre DEWALLEF, Vincent TERRAPON - [9h Proj.]	Q2	28	24	[+]	5
MATH0006-3	<i>Introduction to numerical analysis</i> (english language) - Quentin LOUVEAUX	Q1	20	20	-	4
MECA0001-2	<i>Mechanics of materials</i> - JeanFrançois DEMONCEAU, Laurent DUCHENE - [2h Labo., 12h Proj.]	Q1	27	25	[+]	5
LANG0039-2	<i>English 2, English for Engineering</i> (english language) - Clara BRERETON, Véronique DOPPAGNE, Pascale DRIANNE, Stéphane GHIJSEN, Philippe JEUKENNE, Martin POLSON, David VANMANSHOVEN - [20h Proj.]	TA	-	30	[+]	3
LANG0840-1	<i>French, S1 - 1er quadrimestre</i> - ISLV, Marielle MARÉCHAL	Q1	-	-	-	5
SYST0002-2	<i>Introduction to signals and systems</i> - Guillaume DRION, Alessio FRANCI - [15h Proj.]	Q2	26	26	[+]	5
PHYS0904-4	<i>Physics of materials</i> - Luc COURARD, Anne MERTENS - [1d FW]	Q2	26	26	[+]	5

