

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 in mechanical engineering, students must follow or approve 50 core training credits (including placement and final dissertation), 10 credits from the list "computational mechanics", 30 credits of optional courses and 30 credits from one of the two professional focuses.

Ideally, students taking the Masters will have acquired the skills and knowledge corresponding to 40 credits for the specific technical classes in the field of "mechanics" organised as part of the Bachelor in civil engineering.

Compulsory courses

Mechanical design and production

MECA0444-1	<i>Mechanical design and machining</i> - Jean STUTO - Suppl : Eric BÉCHET, JeanLuc BOZET, Olivier BRULS, Pierre DUYSINX - [15h Labo., 11h Proj., 0,5d FW]	Q2	30	-	[+]	5
MECA0474-1	<i>Mechanical computer-Aided-Design</i> (english language) - Eric BÉCHET - [30h Proj.]	Q1	30	30	[+]	5
MECA0462-2	<i>Materials selection</i> (english language) - Davide RUFFONI - [30h Proj., 1d FW]	Q1	30	30	[+]	5
GEST3162-1	<i>Principles of management</i> (english language) - Michael GHILISSEN, François PICHault, Thierry PIRONET, Didier VAN CAILLIE - Suppl : Fanny FOX	Q1	25	25	-	5

Optional courses

Choose courses totalling 10 credits out of the following :

[...] Computational mechanics 1

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> - JeanClaude GOLINVAL - [5h Labo., 10h Proj.]	Q1	30	30	[+]	5
MECA0036-2	<i>Finite Element Method</i> (english language) - JeanPhilippe PONTHOT - [40h Proj.]	Q2	30	30	[+]	5
MECA0029-1	<i>Theory of vibration</i> (english language) - JeanClaude GOLINVAL - [30h Proj.] Corequisite : MECA0155-2 - Dynamique des systèmes mécaniques MECA0036-2 - Finite Element Method	Q1	30	30	[+]	5
MECA0031-2	<i>Kinematics and dynamics of mechanisms</i> (english language) - Olivier BRULS - [40h Proj.] Corequisite : MECA0155-2 - Dynamique des systèmes mécaniques MECA0036-2 - Finite Element Method	Q2	30	20	[+]	5
MECA0023-1	<i>Advanced solid mechanics</i> (english language) - JeanPhilippe PONTHOT - [30h Proj.] Corequisite : MECA0155-2 - Dynamique des systèmes mécaniques MECA0036-2 - Finite Element Method	Q1	30	30	[+]	5
MECA0010-1	<i>Reliability and stochastic modeling of engineering systems</i> (english language) - Maarten ARNST - [28h Proj.]	Q2	16	16	[+]	5

Study programmes 2016-2017

Faculty of Applied Sciences

Master in mechanical engineering (120 ECTS)

Corequisite :

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

Choose one focus from the following :

Professional focus in mechanical engineering

APRI0005-3	<i>Integrated mechanical project</i> - Maarten ARNST, Eric BÉCHET, JeanLuc BOZET, Olivier BRULS, Pierre DUYSINX, Tristan GILET, Davide RUFFONI, Jean STUTO - [250h Proj., 5d FW]	TA	50	-	[+]	15
	Corequisite : MECA0474-1 - Mechanical Computer-Aided-Design MECA0462-2 - Materials selection MECA0444-1 - Conception mécanique et usinage					

Choose courses totalling 15 credits from the list Mecatronic :

[...] Mecatronic 1

MECA0504-1	<i>Industrial automation</i> - Olivier BRULS, Pierre DUYSINX - [30h Labo.]	Q2	30	-	[+]	5
ELEN0074-1	<i>Sensors, microsensors and instrumentation</i> (english language) - Philippe VANDERBEMDEN - [20h Labo.]	Q2	30	-	[+]	5
MECA0009-2	<i>Introduction to microtechnology</i> (english language) - Tristan GILET - [8h Labo., 22h Proj.]	Q2	12	12	[+]	5
SYST0003-1	<i>Linear control systems</i> (english language) - Guillaume DRION - [6h Labo.]	Q1	30	30	[+]	5
MECA0467-1	<i>Turbomachines</i> - Olivier LÉONARD	Q2	30	30	-	5

Professional focus in sustainable automotive engineering

PROJ0013-1	<i>Innovation project in automotive engineering</i> (english language) - Olivier BRULS, Georges DE PELSEMAEKER, Grigorios DIMITRIADIS, Pierre DUYSINX, Vincent LEMORT - [80h Proj., 1d FW]	Q1	20	-	[+]	8
	Corequisite : MECA0492-2 - Vehicle dynamics MECA0497-2 - Vehicle performance					
MECA0492-2	<i>Vehicle dynamics</i> (english language) - Pierre DUYSINX	Q1	15	10	-	2
	Corequisite : MECA0496-2 - Materials for automotive applications MECA0494-3 - Vehicle components I MECA0493-2 - Vehicle aerodynamics					
MECA0493-2	<i>Vehicle aerodynamics</i> (english language) - Grigorios DIMITRIADIS	Q1	15	10	-	2
	Corequisite : MECA0496-2 - Materials for automotive applications MECA0494-3 - Vehicle components I MECA0492-2 - Vehicle dynamics					
MECA0494-3	<i>Vehicle components I</i> (english language) - Olivier BRULS, Pierre DUYSINX	Q1	25	15	-	3
	Corequisite : MECA0496-2 - Materials for automotive applications MECA0493-2 - Vehicle aerodynamics MECA0492-2 - Vehicle dynamics					
MECA0496-2	<i>Materials for automotive applications</i> (english language)	Q1	15	10	-	2
	Corequisite : MECA0494-3 - Vehicle components I MECA0493-2 - Vehicle aerodynamics MECA0492-2 - Vehicle dynamics					
MECA0497-2	<i>Vehicle performance</i> (english language) - Mustapha BELHABIB,	Q1	25	15	[+]	3

	DUYSINX - [1d FW]				
	Corequisite :				
	MECA0501-1 - Thermal and Electrical Management of vehicles				
	MECA0500-2 - Hybrid electric and fuel cell vehicles				
	MECA0499-2 - Electric traction motors				
	MECA0498-2 - Internal combustion engines				
MECA0498-2	<i>Internal combustion engines</i> (english language) - Philippe NGENDAKUMANA	Q1	25	15	- 3
	Corequisite :				
	MECA0501-1 - Thermal and Electrical Management of vehicles				
	MECA0500-2 - Hybrid electric and fuel cell vehicles				
	MECA0499-2 - Electric traction motors				
	MECA0497-2 - Vehicle performance				
MECA0499-2	<i>Electric traction motors</i> (english language) - Johan GYSELINCK	Q1	15	10	- 2
	Corequisite :				
	MECA0501-1 - Thermal and Electrical Management of vehicles				
	MECA0500-2 - Hybrid electric and fuel cell vehicles				
	MECA0498-2 - Internal combustion engines				
	MECA0497-2 - Vehicle performance				
MECA0500-2	<i>Hybrid electric and fuel cell vehicles</i> (english language) - Pierre DUYSINX, Nathalie JOB	Q1	25	15	- 2
	Corequisite :				
	MECA0501-1 - Thermal and Electrical Management of vehicles				
	MECA0499-2 - Electric traction motors				
	MECA0498-2 - Internal combustion engines				
	MECA0497-2 - Vehicle performance				
MECA0501-1	<i>Thermal and Electrical Management of vehicles</i> (english language) - Vincent LEMORT	Q1	15	10	- 3
	Corequisite :				
	MECA0500-2 - Hybrid electric and fuel cell vehicles				
	MECA0499-2 - Electric traction motors				
	MECA0498-2 - Internal combustion engines				
	MECA0497-2 - Vehicle performance				

Research Focus

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

Block 2

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.

Compulsory courses

Mechanical design and production

ASTG0117-1	<i>Integration internship</i> (english language) - Pierre DEWALLEF	TA	-	-	- 5
	Corequisite :				
	ATFE0013-1 - Travail de fin d'études				
	GEST3162-1 - Principles of management				
ATFE0013-1	<i>Final work</i> - COLLÉGIALITÉ, Pierre DUYSINX - [750h Proj.]	TA	-	-	[+] 25

Optional courses

Choose courses totalling 30 ECTS out of the following :

PROJ0011-1	<i>Personal student project</i> (english language) - Bernard BOIGELOT, COLLÉGIALITÉ - [150h Proj.]	TA	-	-	[+] 5
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[...] 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
LANG2978-1	<i>Dutch for engineer, part 2</i> - Claudine COLIN	Q2	24	-	-	2
	Corequisite : LANG1957-1 - Néerlandais pour l'ingénieur, partim 1					
LANG1958-1	<i>German for engineer, Part 1</i> (german language) - Françoise CARL	Q1	36	-	-	3
LANG2979-1	<i>German for engineers, part 2</i> - Françoise CARL, ISLV	Q2	24	-	-	2
	Corequisite : LANG1958-1 - Allemand pour l'ingénieur, partim 1					
[...]	Maximum 30 ECTS from the lists Mechanical engineering, Mecatronic 2, Computational mechanics 2 and Vehicles and transports					
[...]	Maximum 5 ECTS from the courses list of other masters of the Faculty of applied sciences in agreement with the jury					

Bloc d'aménagement du programme de l'année

Additional ECTS Master in mechanical 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 :

MECA0036-2	<i>Finite Element Method</i> (english language) - JeanPhilippe PONTHOT - [40h Proj.]	Q2	30	30	[+]	5
MECA0155-2	<i>Dynamics of Mechanical Systems</i> - JeanClaude GOLINVAL - [5h Labo., 10h Proj.]	Q1	30	30	[+]	5
MECA0012-6	<i>Solid mechanics</i> - Laurent DUCHENE - [15h Proj.]	Q2	30	30	[+]	5
MECA0444-1	<i>Mechanical design and machining</i> - Jean STUTO - Suppl : Eric BÉCHET, JeanLuc BOZET, Olivier BRULS, Pierre DUYSINX - [15h Labo., 11h Proj., 0,5d FW]	Q2	30	-	[+]	5
MECA0002-1	<i>Applied Thermodynamics and Introduction to Heat Engines</i> - Olivier LÉONARD	Q1	30	30	-	5
MECA0445-2	<i>Heat transfer</i> (english language) - Pierre DEWALLEF, Vincent TERRAPON - [4h Labo., 9h Proj.]	Q2	30	26	[+]	5
MATH0006-3	<i>Introduction to numerical analysis</i> (english language) - Quentin LOUVEAUX	Q1	20	20	-	4
MECA0001-2	<i>Mechanics of materials</i> - JeanPierre JASPART - [2h Labo., 12h Proj.]	Q1	30	28	[+]	5
LANG0039-2	<i>English 2</i> (english language) - Christine FILOT, ISLV - [20h Proj.]	TA	-	30	[+]	3
LANG0840-1	<i>French, S1 - 1er quadrimestre</i> - ISLV, Marielle MARÉCHAL	Q1	-	-	-	5
SYST0002-2	<i>Modelling and analysis of systems</i> - Guillaume DRION - [15h Proj.]	Q1	30	30	[+]	5
PHYS0904-4	<i>Physics of materials</i> - - Suppl : Luc COURARD, Anne HABRAKEN, Anne MERTENS - [1d FW]	Q2	30	30	[+]	5
MECA0025-3	<i>Fluid Mechanics</i> - Eric DELHEZ - [30h Proj.]	Q2	30	30	[+]	5

Mechanical engineering

MECA0069-1	<i>Advanced production methods</i> - N... - [4h Labo.]	Q2	30	26	[+]	5
MECA0473-1	<i>Metallic materials Engineering</i>	Q1	30	30	-	5

MECA0138-1	<i>Welding and non-destructive tests</i> - Nathalie GERLACH, Adnen ben Mahmoud KECHAOU - [30h Labo.]	Q1	30	-	[+]	5
MECA0139-1	<i>Techniques of additive manufacturing and 3D printing</i> - Thierry DORMAL, Anne MERTENS	Q1	15	15	-	3
MECA0035-1	<i>Lubrication and tribology</i> - JeanLuc BOZET	Q1	30	30	-	5
MECA0509-1	<i>Sustainable engineering processes</i> (english language) - Georges DE PELSEMAEKER		15	30	-	5
GEST0188-1	<i>Determination and Recognition of Quality and Conformity</i> - JeanMichel COMPÈRE, Pierre DEWALLEF Corequisite : MECA0521-1 - Gestion QSHE	Q1	30	-	-	3
MECA0521-1	<i>HSE management, Part 2 : Practical aspects of HSE management</i> - Pierre DEWALLEF - [10h Proj., 1d FW] Corequisite : MECA0051-2 - Gestion QSHE	TA	20	10	[+]	2
MECA0006-1	<i>Thermal Machines and Systems</i> - Vincent LEMORT - [4h Proj.]	Q1	30	30	[+]	5
CHIM0699-2	<i>Life cycle analysis - ecodesign</i> - Sandra BELBOOM, Angélique LÉONARD	Q1	10	30	-	3
MECA0502-1	<i>Mechanics of composites</i> (english language) - Michaël BRUYNEEL	Q1	30	30	-	5
Mecatronic 2						
ELEC0055-1	<i>Electronic control systems</i> (english language) - Fabrice FREBEL	Q1	30	30	-	5
MECA0517-1	<i>Advanced industrial robotics</i> (english language) - Olivier BRULS - [10h Proj.]	Q2	30	20	[+]	5
INFO0948-2	<i>Introduction to intelligent robotics</i> (english language) - Renaud DETRY, Louis WEHENKEL - [80h Proj.]	Q2	30	4	[+]	5
INFO0064-2	<i>Embedded systems</i> (english language) - Bernard BOIGELOT	Q1	25	20	-	3
INFO2055-1	<i>Embedded systems project</i> (english language) - Bernard BOIGELOT - [60h Proj.]	Q2	-	-	[+]	2
GBIO0012-2	<i>Biomechanics</i> (english language) - Davide RUFFONI - [1d FW]	Q1	30	30	[+]	5
MECA0516-1	<i>Mechanical properties of biological and bioinspired materials</i> (english language) - Davide RUFFONI - [3h Labo.]	Q1	15	12	[+]	3
GBIO0022-1	<i>Biomimeticism</i> (english language) - Philippe COMPÈRE, Liesbet GERIS, Tristan GILET, Eric PARMENTIER, Davide RUFFONI - [45h Proj.]	TA	15	-	[+]	5
MECA0008-1	<i>Microfluidics</i> (english language) - Tristan GILET - [16h Labo., 14h Proj.]	Q1	22	8	[+]	5
PROT0430-3	<i>Biomedical robotics and active prostheses</i> - Olivier BRULS	Q1	15	10	-	3
Computational mechanics 2						
MECA0464-1	<i>Large deformation of solids</i> (english language) - JeanPhilippe PONTHOT - [60h Proj.]	Q1	30	30	[+]	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) - JeanClaude GOLINVAL - [30h Proj.] Prerequisite : MECA0029-1 - Theory of vibration	Q1	30	30	[+]	5
MECA0470-1	<i>New methods in computational mechanics</i> (english language) - Maarten ARNST, Eric BÉCHET, Ludovic NOELS - [40h Proj.]	Q2	20	-	[+]	5
INFO2046-2	<i>Computational geometry</i> (english language) - Eric BÉCHET - [95h Proj.]	Q1	25	-	[+]	5
MECA0027-1	<i>Structural and multidisciplinary optimization</i> (english language) - Pierre DUYSINX, Patricia TOSSINGS - [18h Proj.]	Q1	30	12	[+]	5

INFO0939-1	<i>High performance scientific computing</i> (english language) - Christophe GEUZAINÉ - [20h Proj.]	Q1	30	15	[+]	5
MATH0024-1	<i>Modelling with partial differential equations</i> (english language) - Maarten ARNST, Romain BOMAN - [25h Proj.]	Q1	30	20	[+]	5
MATH0471-2	<i>Multiphysics integrated computational project</i> (english language) - Romain BOMAN, Christophe GEUZAINÉ - [30h Proj.] Corequisite : INFO0939-1 - High performance scientific computing MATH0024-1 - Modelling with partial differential equations	TA	20	-	[+]	5
MECA0029-1	<i>Theory of vibration</i> (english language) - JeanClaude GOLINVAL - [30h Proj.] Corequisite : MECA0155-2 - Dynamique des systèmes mécaniques MECA0036-2 - Finite Element Method	Q1	30	30	[+]	5
MECA0031-2	<i>Kinematics and dynamics of mechanisms</i> (english language) - Olivier BRULS - [40h Proj.] Corequisite : MECA0155-2 - Dynamique des systèmes mécaniques MECA0036-2 - Finite Element Method	Q2	30	20	[+]	5
MECA0023-1	<i>Advanced solid mechanics</i> (english language) - JeanPhilippe PONTHOT - [30h Proj.] Corequisite : MECA0155-2 - Dynamique des systèmes mécaniques MECA0036-2 - Finite Element Method	Q1	30	30	[+]	5
MECA0010-1	<i>Reliability and stochastic modeling of engineering systems</i> (english language) - Maarten ARNST - [28h Proj.] Corequisite : MECA0155-2 - Dynamique des systèmes mécaniques MECA0036-2 - Finite Element Method	Q2	16	16	[+]	5

Vehicles and transport

MECA0041-1	<i>Internal combustion engine</i> - Philippe NGENDAKUMANA - [1,5d FW, 20h Proj.]	Q2	30	30	[+]	5
GCIV2177-1	<i>Fundamentals of transportation : sustainable transport</i> (english language) - Mario COOLS	Q1	15	15	-	2
CNAV0020-1	<i>Introduction to naval construction</i> - André HAGE, Philippe RIGO	Q1	40	30	-	5
MECA0063-1	<i>Vehicle Architecture</i> - Pierre DUYSINX - [30h Proj.]	Q2	30	-	[+]	5