Vue bloc du programme des cours

		Or	Th	Pr	Au	Cr

Bloc 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 90 credits of the compulsory courses (including the master thesis) and 30 credits from the research focus.
Ideally, students enrolling in the master program should have acquired the skills and knowledge corresponding to the 40 credits in "Physics" offered as part of the bachelor program in engineering.

Compulsory courses

Applied physics

CHIM9308-1	*Physical chemistry* (anglais) - Bernard LEYH **Corequis :** PHYS0211-3 - Mécanique quantique	Q1	30	10	-	**4**
ELEN0004-1	*Semiconductor devices* (anglais) - Benoît VANDERHEYDEN **Corequis :** ELEN0076-1 - Electromagnétisme	Q1	26	26	-	**5**
MECA0023-1	*Advanced solid mechanics* (anglais) - JeanPhilippe PONTHOT - [30h Proj.] **Corequis :** MECA0036-2 - Finite Element Method	Q1	26	26	[+]	**5**
MECA0446-2	*Continuum Mechanics* (anglais) - JeanPhilippe PONTHOT - [50h Proj.]	Q2	26	26	[+]	**5**
CHIM0698-1	*Physical chemistry of interfaces* (anglais) - Cédric GOMMES	Q2	20	10	-	**3**

Experimental methods

MECA0008-1	*Microfluidics* (anglais) - Tristan GILET - [16h Labo., 14h Proj.]	Q2	22	8	[+]	**5**
ELEN0074-1	*Sensors, microsensors and instrumentation* (anglais) - Philippe VANDERBEMDEN - [20h Labo.]	Q2	30	-	[+]	**5**

Modelling and design methods

MATH0024-1	*Modelling with partial differential equations* (anglais) - Maarten ARNST, Romain BOMAN - [25h Proj.] **Corequis :** MECA0025-3 - Mécanique des fluides	Q1	30	20	[+]	**4**
INFO0939-1	*High performance scientific computing* (anglais) - Christophe GEUZAINE - [20h Proj.]	Q1	30	15	[+]	**4**
MATH2015-1	*Perturbation methods* (anglais) - Vincent DENOËL	Q2	15	15	-	**3**
SYST0003-1	*Linear control systems* (anglais) - *Theory* - Guillaume DRION - *Control system design in time domain and frequency domain* - Guillaume DRION - [6h Labo.]	Q1	 26 -	 6 20	 - [+]	**5**

Projects

MATH0471-3	*Multiphysics integrated computational project* (anglais) - - Romain BOMAN, Christophe GEUZAINE - [30h Proj.] - - Romain BOMAN, Christophe GEUZAINE - [40h Proj.] **Corequis :** MATH2015-1 - Perturbation methods INFO0939-1 - High performance scientific computing MATH0024-1 - Modelling with partial differential equations	TA	 33 11	 - -	 [+] [+]	**7**
APRI0006-1	*Personal experimental project* (anglais) - Tristan GILET - [60h Proj.]	TA	-	-	[+]	**5**

Bloc 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

ATFE9007-1	*Travail de fin d'études (en ce compris une introduction à la méthodologie de la recherche)* - Benoît VANDERHEYDEN - [750h Proj.]	TA	-	-	[+]	**25**
GEST3162-1	*Principles of management* (anglais) - Michael GHILISSEN, François PICHAULT	Q1	25	25	-	**5**

Optional courses

Single focus

Research focus

Choose one of the three following options :

Fluids

PHYS0961-1	*Irréversibilité, instabilités et chaos* - Pierre DAUBY	Q1	30	30	-	**5**
OCEA0071-1	*Geophysical fluid dynamics - part 1* (anglais) - JeanMarie BECKERS	Q2	30	15	-	**5**
PHYS3133-1	*Complex fluids and non-Newtonian flows* (anglais) - Vincent TERRAPON	Q1	26	26	-	**5**

Solids

MECA0464-1	*Large deformation of solids* (anglais) - JeanPhilippe PONTHOT - [60h Proj.]	Q1	26	26	[+]	**5**
MECA0058-1	*Fracture mechanics, damage and fatigue* (anglais) - Ludovic NOELS - [75h Proj.]	Q1	30	10	[+]	**5**
MECA0516-1	*Mechanical properties of biological and bioinspired materials* (anglais) - Davide RUFFONI - [4h Labo.]	Q1	26	22	[+]	**5**

Materials and electronics

ELEN0047-1	*Superconductivity* (anglais) - Philippe VANDERBEMDEN - [15h Labo.]	Q1	30	-	[+]	**5**
ELEN0446-1	*Physics of electrical insulating materials* (anglais) - Philippe VANDERBEMDEN - [15h Labo.]	Q1	15	-	[+]	**3**
CHIM0664-1	*Electrochemical energy conversion and storage* (anglais) - Nathalie JOB - [15h Labo.]	Q1	15	-	[+]	**3**
ELEN0069-1	*Nanoelectronics / Optoelectronics* (anglais) - Benoît VANDERHEYDEN - [40h Proj.]	Q2	30	-	[+]	**4**

Choose 15 credits among :

in either an internship

ASTG0025-1	*Internship* (anglais) - Tristan GILET	TA	-	-	-	**10**

This course must be independent of the master's thesis. Can be carried out in either a company or in a research center outside ULiège.

or in the list of optional courses below :

The subjects MECA0036-2, ELEN0076-1, MECA0025-3 and PHYS0211-3 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.

MECA0036-2	*Finite Element Method* (anglais) - JeanPhilippe PONTHOT - [40h Proj.]	Q2	26	26	[+]	**5**
ELEN0076-1	*Electromagnétisme* - Benoît VANDERHEYDEN	Q1	26	26	-	**5**

MECA0025-3	*Mécanique des fluides* - Eric DELHEZ - [30h Proj.]	Q2	26	26	[+]	**5**
PHYS0211-3	*Mécanique quantique* - John MARTIN	Q1	26	26	-	**5**
	Remarque : 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.					
BIOL0114-4	*Microscopies électroniques, Partim A* - Philippe COMPÈRE	Q2	15	-	-	**3**
AERO0030-1	*Computational fluid dynamics* (anglais) - Vincent TERRAPON - [10h Labo.]	Q2	30	20	[+]	**5**
CHIM0697-1	*Heterogeneous catalysis* (anglais) - Nathalie JOB - [10h Proj.]	Q1	20	20	[+]	**4**
ELEC0041-1	*Modelling and design of electromagnetic systems* (anglais) - Christophe GEUZAINE	Q2	26	26	-	**5**
MECA0027-1	*Structural and multidisciplinary optimization* (anglais) - Pierre DUYSINX, Patricia TOSSINGS - [18h Proj.]	Q1	30	12	[+]	**5**
MECA0029-1	*Theory of vibration* (anglais) - JeanClaude GOLINVAL - [30h Proj.]	Q1	26	26	[+]	**5**
MECA0010-1	*Reliability and stochastic modeling of engineering systems* (anglais) - Maarten ARNST - [28h Proj.]	Q1	16	16	[+]	**5**
MECA0470-1	*New methods in computational mechanics* (anglais) - Maarten ARNST, Eric BÉCHET, Ludovic NOELS - [40h Proj.]	Q2	20	-	[+]	**5**
MECA0518-1	*Environmental hydrodynamics* (anglais) - Benjamin DEWALS	Q2	26	26	-	**5**
PHYS0038-2	*Introduction into polymer physics including plasturgy* (anglais) - Klaus KECKANTOINE	Q1	30	-	-	**4**
MATH0461-2	*Introduction to numerical optimization* (anglais) - Quentin LOUVEAUX - [25h Proj.]	Q1	30	20	[+]	**5**
INGE0012-1	*Scientific research in engineering and its impact on innovation* (anglais) - Rodolphe SEPULCHRE	Q2	26	26	-	**5**
MECA0524-1	*CAD & Geometric Algorithms* - Eric BÉCHET - [60h Proj.]	Q1	20	20	[+]	**5**
PROJ0011-2	*Personal student project* (anglais) - Pierre DUYSINX, Liesbet GERIS, Grégoire LÉONARD - [150h Proj.]	TA	-	-	[+]	**5**

[...] or in either another option

[...] subject to the approval of the Cycle jury, up to 10 credits can be chosen in the ULiège course programme

Bloc d'aménagement du programme de l'année