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

Experimental methods

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

Modelling and design methods

MATH0024-1	*Modelling with partial differential equations* (english language) - Maarten ARNST, Romain BOMAN - [25h Proj.] **Corequisite :** MECA0025-3 - Mécanique des fluides	Q1	30	20	[+]	**4**
INFO0939-1	*High performance scientific computing* (english language) - Christophe GEUZAINE - [20h Proj.]	Q1	30	15	[+]	**4**
MATH2015-1	*Perturbation methods* (english language) - Vincent DENOËL	Q2	15	15	-	**3**
SYST0003-1	*Linear control systems* (english language) - *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* (english language) - - Romain BOMAN, Christophe GEUZAINE - [30h Proj.] - - Romain BOMAN, Christophe GEUZAINE - [40h Proj.] **Corequisite :** 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* (english language) - Tristan GILET - [60h	TA	-	-	[+]	**5**

Proj.]

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

ATFE9007-1	*Final thesis (included an introduction to research methodology)* - Benoît VANDERHEYDEN - [750h Proj.]	TA	-	-	[+]	**25**
GEST3162-1	*Principles of management* (english language) - Michael GHILISSEN, François PICHAULT	Q1	25	25	-	**5**

Optional courses

Single focus

Research focus

Choose one of the three following options :

Fluids

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

Solids

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

Materials and electronics

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

Choose 15 credits among :

in either an internship

ASTG0025-1	*Internship* (english language) - 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* (english language) - JeanPhilippe PONTHOT - [40h Proj.]	Q2	26	26	[+]	**5**
ELEN0076-1	*Electromagnetism* - Benoît VANDERHEYDEN	Q1	26	26	-	**5**
MECA0025-3	*Fluid Mechanics* - Eric DELHEZ - [30h Proj.]	Q2	26	26	[+]	**5**
PHYS0211-3	*Quantum mechanics* - John MARTIN	Q1	26	26	-	**5**
	Notice : 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	*Electronic microscopies, Part A* - Philippe COMPÈRE	Q2	15	-	-	**3**
AERO0030-1	*Computational fluid dynamics* (english language) - Vincent TERRAPON - [10h Labo.]	Q2	30	20	[+]	**5**
CHIM0697-1	*Heterogeneous catalysis* (english language) - Nathalie JOB - [10h Proj.]	Q1	20	20	[+]	**4**
ELEC0041-1	*Modelling and design of electromagnetic systems* (english language) - Christophe GEUZAINE	Q2	26	26	-	**5**
MECA0027-1	*Structural and multidisciplinary optimization* (english language) - Pierre DUYSINX, Patricia TOSSINGS - [18h Proj.]	Q1	30	12	[+]	**5**
MECA0029-1	*Theory of vibration* (english language) - JeanClaude GOLINVAL - [30h Proj.]	Q1	26	26	[+]	**5**
MECA0010-1	*Reliability and stochastic modeling of engineering systems* (english language) - Maarten ARNST - [28h Proj.]	Q1	16	16	[+]	**5**
MECA0470-1	*New methodsin computational mechanics* (english language) - Maarten ARNST, Eric BÉCHET, Ludovic NOELS - [40h Proj.]	Q2	20	-	[+]	**5**
MECA0518-1	*Environmental hydrodynamics* (english language) - Benjamin DEWALS	Q2	26	26	-	**5**
PHYS0038-2	*Introduction into polymer physics including plasturgy* (english language) - Klaus KECKANTOINE	Q1	30	-	-	**4**
MATH0461-2	*Introduction to numerical optimization* (english language) - Quentin LOUVEAUX - [25h Proj.]	Q1	30	20	[+]	**5**
INGE0012-1	*Scientific research in engineering and its impact on innovation* (english language) - Rodolphe SEPULCHRE	Q2	26	26	-	**5**
MECA0524-1	*CAD & Geometric Algorithms* - Eric BÉCHET - [60h Proj.]	Q1	20	20	[+]	**5**
PROJ0011-2	*Personal student project* (english language) - 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