Cycle view of the study programme

		Bl	Or	Th	Pr	Au	Cr

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.

Within the framework of their Master in Chemical and Materials Science Engineering, all students must follow or validate the 90 credits of joint training and the 30 credits of the professional focus.
Ideally, students studying for the master¿s degree will have acquired the competences and knowledge corresponding to the 40 credits of technical courses specific to the field of 'Chemical and Materials Science', taught within the framework of the Bachelor in Civil Engineering.

Compulsory courses (B1 : 60Cr, B2 : 30Cr)

Chemical engineering training

CHIM9299-1	*Physical Unit Operations I* (english language) - Andreas PFENNIG - [5h Labo.] **Corequisite :** CHIM0022-4 - Transport phenomena	B1	Q1	30	10	[+]	**4**
CHIM9300-1	*Physical Unit Operations II* (english language) - Andreas PFENNIG - [5h Labo.] **Prerequisite :** CHIM0022-4 - Transport phenomena **Corequisite :** CHIM9299-1 - Physical Unit Operations I	B1	Q2	30	10	[+]	**4**
CHIM9277-1	*Chemical reactor engineering* - Dominique TOYE - [15h Labo.] **Corequisite :** CHIM9306-1 - Introduction au génie chimique et aux procédés industriels	B1	Q1	45	15	[+]	**6**
CHIM0697-1	*Heterogeneous catalysis* (english language) - Nathalie JOB - [10h Proj.] **Corequisite :** CHIM0022-4 - Transport phenomena	B1	Q2	20	20	[+]	**4**

Training in materials

CHIM0675-1	*Macromolecular Chemistry* - AnneSophie DUWEZ - [20h Labo.] **Prerequisite :** CHIM0604-2 - Chimie et matériaux organiques	B1	Q1	20	-	[+]	**3**
CHIM0698-1	*Physical Chemistry of Interfaces* (english language) - Cédric GOMMES	B1	Q2	20	10	-	**3**
CHIM0676-1	*Polymerisation processes* (english language) - Klaus KECKANTOINE **Corequisite :** CHIM0675-1 - Chimie macromoléculaire	B1	Q2	20	-	-	**2**
CHIM0666-2	*Inorganic materials : manufacturing procedures and propriety* - Stéphanie LAMBERT - [30h Labo., 1d FW] **Prerequisite :** CHIM0605-2 - Chimie et matériaux inorganiques	B1	Q2	30	-	[+]	**5**

Training in processes

CHIM0081-3	*Industrial Chemistry Processes, structure of chemical industry* - Angélique LÉONARD - [1d FW]	B1	Q1	30	-	[+]	**3**
CHIM0695-2	*Introduction to the modelling of chemical processes* (english language) - Grégoire LÉONARD **Corequisite :** CHIM0009-3 - Thermodynamique chimique appliquée	B1	Q1	20	32	-	**4**
CHIM0696-1	*Static and dynamic modelling of large chemical processes* (english language) - Grégoire LÉONARD - [1d FW] **Corequisite :** CHIM0695-2 - Introduction to the modelling of chemical processes	B1	Q2	20	32	[+]	**4**
CHIM0080-2	*Energy carriers and sustainable development* - Angélique LÉONARD	B1	Q2	20	-	-	**2**

Further training in chemistry

CHIM9289-2	*Analytical chemistry III - Physical methods, Theory* - Gauthier EPPE **Corequisite :** CHIM9284-3 - Chimie analytique I - Méthodes chimiques d'analyse	B1	Q1	30	-	-	**3**
CHIM9298-1	*Industrial internchip in Analytical Chemistry* - Gauthier EPPE - [60h Labo.] **Corequisite :** CHIM9289-2 - Chimie analytique III - Méthodes physiques	B1	Q2	-	-	[+]	**3**

Integrated project

PROJ0012-1	*Integrated project* (english language) - MarieNoëlle DUMONT, Nathalie JOB, Angélique LÉONARD, Grégoire LÉONARD, Andreas PFENNIG, Dominique TOYE - [270h Proj., 1d FW] **Prerequisite :** CHIM0022-4 - Transport phenomena CHIM0009-3 - Thermodynamique chimique appliquée **Corequisite :** CHIM9300-1 - Physical Unit Operations II CHIM9299-1 - Physical Unit Operations I CHIM9277-1 - Génie chimique (étude des réacteurs) CHIM0697-1 - Heterogeneous catalysis CHIM0696-1 - Static and dynamic modelling of large chemical processes CHIM0695-2 - Introduction to the modelling of chemical processes CHIM0081-3 - Procédés de chimie industrielle CHIM0080-2 - Vecteurs énergétiques et développement durable	B1	TA	10	-	[+]	**10**
GEST3162-1	*Principles of management* (english language) - Michael GHILISSEN, François PICHAULT	B2	Q1	25	25	-	**5**
ATFE0004-1	*Master Thesis (including an introduction to research methodology)* - COLLÉGIALITÉ, Angélique LÉONARD - [750h Proj.]	B2	TA	-	-	[+]	**25**

Optional courses (B2 : 30Cr)

Single focus (B2 : 30Cr)

Professional Focus (B2 : 30Cr)

Notice : Optional courses only take place if there are a minimum number of students registered.

Choose 3 credits among : (B2 : 3Cr)

ASTG0022-1	*4-week Observation internship (functional analysis)* - Benoît HEINRICHS - [20d FW] **Corequisite :** GEST3162-1 - Principles of management	B2	TA	-	-	[+]	**3**
GEST3772-1	*Appendix "functional analysis" in the final thesis done in a company* - Benoît HEINRICHS **Corequisite :** ATFE0004-1 - Travail de fin d'études (en ce compris une introduction à la méthodologie de la recherche) à l'ULg GEST3162-1 - Principles of management	B2	TA	-	-	-	**3**
GEST3781-1	*Appendix "functional analysis" in a technical intership* - Benoît HEINRICHS **Corequisite :** GEST3162-1 - Principles of management ASTG0023-1 - Stage technique (8 semaines)	B2	TA	-	-	-	**3**

Choose minimum 27 credits worth of optional courses from among the technical placement, the "INGE0012-1" course, the "PROJ0011-2" course and in a maximum of three modules: (B2 : 27Cr)

ASTG0023-1	*Technical internship (8 weeks)* - Benoît HEINRICHS - [40d FW]	B2	TA	-	-	[+]	**5**

	Corequisite : GEST3162-1 - Principles of management						
INGE0012-1	*Scientific research in engineering and its impact on innovation* (english language) - Rodolphe SEPULCHRE	B2	Q2	26	26	-	**5**
PROJ0011-2	*Personal student project* (english language) - Georges DE PELSEMAEKER, Pierre DUYSINX, Liesbet GERIS, Grégoire LÉONARD, Quentin LOUVEAUX - [150h Proj.]	B2	TA	-	-	[+]	**5**
Chemical engineering bases							
Students who have not followed the courses CHIM0022-4, CHIM0009-3, CHIM0606-2, CHIM0605-2 and CHIM0604-2 from the option "Chemistry and material sciences" from bachelor in civil engineering programme or acquired the equivalent knowledge and skills have to choose in priority these five courses in their study programme ; theses courses are corequisites of compulsory courses of the master.							
CHIM0022-4	*Transport phenomena* (english language) - *Part A* - Andreas PFENNIG - *Part B* - Andreas PFENNIG	B2	Q2 30 -	- 20	- -		**5**
CHIM0009-3	*Applied Chemical Thermodynamics* - Nathalie JOB, Grégoire LÉONARD	B2	Q1	26	26	-	**5**
CHIM9284-3	*Analytical chemistry I - Chemical analysis methods* - *Theory* - Gauthier EPPE - *Practice* - Gauthier EPPE - [15h QA Sess.] - *Supplement* - Gauthier EPPE - [11h QA Sess.]	B2	Q1 20 - 6	- - -	- [+] [+]		**5**
CHIM0605-2	*Chemistry and inorganic materials* - Stéphanie LAMBERT, Bénédicte VERTRUYEN	B2	Q2	35	20	-	**5**
CHIM0604-2	*Chemistry and organic materials* - Lionel DELAUDE	B2	Q2	33	19	-	**5**
Sustainable development : energy and environment							
CHIM0664-1	*Electrochemical energy conversion and storage* (english language) - Nathalie JOB - [15h Labo.]	B2	Q1	15	-	[+]	**3**
CHIM0071-4	*Reduction of pollutants from combustion* - Angélique LÉONARD - [1d FW]	B2	Q1	30	-	[+]	**3**
CHIM9303-1	*Advanced Question in Chemical Engineering : water sanitation and sludge treatment* - Frank DELVIGNE, Angélique LÉONARD, Dominique TOYE - [1d FW]	B2	Q1	20	15	[+]	**3**
CHIM0699-2	*Life cycle assessment - Ecodesign* (english language) - Angélique LÉONARD **Corequisite :** CHIM0071-4 - Réduction des polluants en combustion	B2	Q1	10	30	-	**3**
CHIM9309-1	*Process Intensification and Hybrid Processes* (english language) - Andreas PFENNIG	B2	Q1	25	8	-	**3**
MECA0450-3	*Renewable energies* (english language) - Pierre DEWALLEF - [24h Proj., 1d FW]	B2	Q1	24	12	[+]	**5**
GEOL0281-4	*Environmental impact of industrial and mining activities* - Stoyan GAYDARDZHIEV - [1d FW, 25h Labo., 5h Proj.]	B2	Q1	25	-	[+]	**5**
Biotechnology and Chemistry							
CHIM0055-1	*Chemical Engineering of Polyphase Systems* - JeanMarc SCHWEITZER **Corequisite :** CHIM0697-1 - Heterogeneous catalysis CHIM9277-1 - Génie chimique (étude des réacteurs) CHIM9300-1 - Physical Unit Operations II	B2	Q1	20	30	-	**4**
CHIM0668-1	*Agitation and Mixture* - Dominique TOYE - [5h Labo.] **Corequisite :**	B2	Q1	20	5	[+]	**3**

	CHIM9277-1 - Génie chimique (étude des réacteurs)						
CHIM9302-1	*Advanced Question in Chemical Engineering : Biotechnology* - Frank DELVIGNE, Aurore RICHEL, Dominique TOYE - [30h Proj., 1d FW]	B2	Q1	30	10	[+]	**5**
Procedures							
CHIM0054-2	*Introduction to economic analysis, application to industrial processes* (english language) - Grégoire LÉONARD - [90h Proj.] **Prerequisite :** PROJ0012-1 - Integrated project	B2	Q1	10	-	[+]	**4**
CHIM9301-1	*Project management and engineering methods in the industry* (english language) - Grégoire LÉONARD - [1d FW] **Prerequisite :** PROJ0012-1 - Integrated project	B2	Q1	20	15	[+]	**4**
CHIM0074-2	*Seminars on industrial security* - JeanLuc BOZET, Angélique LÉONARD, Dominique TOYE - [2d FW] **Corequisite :** CHIM9277-1 - Génie chimique (étude des réacteurs)	B2	Q1	15	-	[+]	**2**
GEST0188-1	(pas organisé en 2018-2019) *Determination and Recognition of Quality and Conformity* - Pierre DEWALLEF **Corequisite :** MECA0521-1 - Gestion QSHE	B2	Q1	30	-	-	**3**
MECA0521-1	(pas organisé en 2018-2019) *HSE management, Part 2 : Practical aspects of HSE management* - Pierre DEWALLEF - [10h Proj., 1d FW]	B2	TA	20	10	[+]	**2**
GEOL0314-1	*Mineral processing I - basics* (english language) - Stoyan GAYDARDZHIEV - [30h Labo., 10h Proj., 1,5d FW]	B2	Q1	30	-	[+]	**5**
GEOL0315-1	*Solid Waste and by products processing* (english language) - Stoyan GAYDARDZHIEV - [20h Labo., 7h Proj., 1,5d FW]	B2	Q1	20	-	[+]	**5**
Materials Science							
CHIM0072-2	*Nanomaterials and divided materials engineering* - Benoît HEINRICHS, Stéphanie LAMBERT **Corequisite :** CHIM0698-1 - Physical chemistry of interfaces CHIM0666-2 - Matériaux inorganiques: procédés de fabrication et propriétés d'usage	B2	Q1	15	15	-	**3**
PHYS0038-2	*Introduction into polymer physics including plasturgy* - Klaus KECKANTOINE **Corequisite :** CHIM0676-1 - Polymerisation processes	B2	Q1	30	-	-	**3**
MECA0462-2	*Materials selection* (english language) - Anne MERTENS, Davide RUFFONI - [30h Proj., 1d FW]	B2	Q1	26	26	[+]	**5**
BIOC0430-1	*Interaction of living material* - Christian GRANDFILS	B2	Q1	25	-	-	**3**
MECA0516-1	*Mechanical properties of biological and bioinspired materials* (english language) - *Part A* - Davide RUFFONI - *Part B* - Davide RUFFONI - [3h Labo.]	B2	Q1 15 -	 12 -	 - [+]		**3**
Organising the materials							
MECA0464-1	*Large deformation of solids* (english language) - JeanPhilippe PONTHOT - [60h Proj.] **Corequisite :** MECA0023-1 - Advanced solid mechanics	B2	Q1	26	26	[+]	**5**
MECA0023-1	*Advanced solid mechanics* (english language) - JeanPhilippe PONTHOT - [30h Proj.]	B2	Q1	26	26	[+]	**5**

MECA0473-1	*Metallic materials engineering* - Anne MERTENS	B2	Q1	26	26	-	**5**
MECA0139-1	*Techniques of additive manufacturing and 3D printing* - Thierry DORMAL, Anne MERTENS	B2	Q1	26	26	-	**5**

Additional ECTS Master in chemical and materials science engineering

Optional courses (B0 : 60Cr)

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 : (B0 : 60Cr)

MATH0066-1	*Complement of mathematics* - Patricia TOSSINGS	B0	Q2	26	26	-	**4**
CHIM0286-1	*Rudiments of thermodynamics* - Benoît HEINRICHS	B0	Q1	26	26	-	**5**
MECA0001-2	*Mechanics of materials* - JeanPierre JASPART - [2h Labo., 12h Proj.]	B0	Q1	27	25	[+]	**5**
MECA0011-2	*Fluid Mechanics : Basics* - Michel PIROTTON - [25h Proj.]	B0	Q2	20	30	[+]	**4**
CHIM9306-1	*Introduction to chemical engineering and industrial processes* - MarieNoëlle DUMONT, Nathalie JOB, Dominique TOYE - [20h Proj.]	B0	Q2	24	24	[+]	**5**
CHIM0604-2	*Chemistry and organic materials* - Lionel DELAUDE	B0	Q2	33	19	-	**5**
CHIM0022-4	*Transport phenomena* (english language) - *Part A* - Andreas PFENNIG - *Part B* - Andreas PFENNIG	B0	Q2 30 -	- 20	- -		**5**
CHIM0009-3	*Applied Chemical Thermodynamics* - Nathalie JOB, Grégoire LÉONARD	B0	Q1	26	26	-	**5**
CHIM9284-3	*Analytical chemistry I - Chemical analysis methods* - *Theory* - Gauthier EPPE - *Practice* - Gauthier EPPE - [15h QA Sess.] - *Supplement* - Gauthier EPPE - [11h QA Sess.]	B0	Q1 20 - 6	- - -	- [+] [+]		**5**
CHIM0605-2	*Chemistry and inorganic materials* - Stéphanie LAMBERT, Bénédicte VERTRUYEN	B0	Q2	35	20	-	**5**

[...] Choose maximum 12 credits to complete the curriculum

Master en ingénieur civil en chimie et science des matériaux, à finalité - Programme aménagé pour les bacheliers en sciences chimiques