Block view of the study programme

		Or	Th	Pr	Au	Cr

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.

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

Chemical engineering training

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

Training in materials

CHIM0698-1	*Introduction to the Physical Chemistry of Nanomaterials* (english language) - Cédric GOMMES	Q2	20	10	-	**3**
CHIM9319-1	*Macromolecules and Polymerisation processes* (english language) - Antoine DEBUIGNE, Klaus KECKANTOINE - [10h Proj., 12h Labo.]	Q2	30	-	[+]	**5**
CHIM0605-2	*Chemistry and inorganic materials* - Bénédicte VERTRUYEN - [3d Labo.]	Q2	30	-	[+]	**5**

Training in processes

CHIM0695-2	*Introduction to the modelling of chemical processes* (english language) - Grégoire LÉONARD **Corequisite :** CHIM0009-3 - Thermodynamique chimique appliquée	Q1	20	32	-	**5**
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	Q2	20	32	[+]	**4**
MECA0528-1	*Practical fluid mechanics for the process industry* (english language) - Koen HILLEWAERT - [4h Labo.]	Q2	35	7	[+]	**4**

Further training in chemistry

CHIM9284-3	*Analytical chemistry I - Chemical analysis methods* - *Theory* - Gauthier EPPE - *Practice* - Gauthier EPPE - [26h QA Sess.] - *Laboratories* - [5d Labo.]		26 - -	- - -	- [+] [+]	**5**

Integrated project

PROJ0012-1	*Integrated Project* (english language) - MarieNoëlle DUMONT, Samuel GENDEBIEN, Nathalie JOB, Angélique LÉONARD, Grégoire LÉONARD, Andreas PFENNIG, Dominique TOYE - [270h Proj., 1d FW] **Prerequisite :** CHIM0009-3 - Thermodynamique chimique appliquée CHIM0022-4 - Transport phenomena **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	TA	20	-	[+]	**10**

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

GEST3162-1	*Principles of management* (english language) - François PICHAULT, Willem STANDAERT - [25h Proj.]	Q1	30	-	[+]	**5**
ATFE0004-1	*Master Thesis (including an introduction to research methodology)* - COLLÉGIALITÉ, Angélique LÉONARD - [750h Proj.]	TA	-	-	[+]	**25**

Optional courses

Single focus

Specialised focus: Chemical Engeneering

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

Choose courses totalling 30 ECTS out of the following :

Notice : students must carry out an internship within a company either through the ASTG0023-1 course or by including the internship in their final dissertation.

Chemical engineering bases

Notice : students who have not followed the courses CHIM0022-4, CHIM0009-3, CHIM9320-1 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	Q2	 30 -	 - 20	 - -	**5**
CHIM0009-3	*Applied Chemical Thermodynamics* - MarieNoëlle DUMONT, Nathalie JOB, Grégoire LÉONARD	Q2	26	26	-	**5**
CHIM9320-1	*Introduction to chemical reaction engineering* - Nathalie JOB, Dominique TOYE	Q1	24	24	-	**5**
CHIM0604-2	*Chemistry and organic materials* - Lionel DELAUDE	Q2	33	19	-	**5**

Option cours

INGE0012-1	(pas organisé en 2022-2023) *Scientific research in engineering and its impact on innovation* (english language)	Q2	26	26	-	**5**
ASTG0023-1	*Technical internship (8 weeks)* - Benoît HEINRICHS - [40d FW]	TA	-	-	[+]	**5**

	Corequisite : GEST3162-1 - Principles of management					
CHIM0664-1	*Electrochemical energy conversion and storage* (english language) - *theory* - Nathalie JOB - *lab* - Nathalie JOB - [15h Labo.]	Q1	15 -	- -	- [+]	**3**
CHIM9315-1	*Sustainable management of fuels: supply, synthesis and use* - Angélique LÉONARD, Grégoire LÉONARD	Q1	50	-	-	**5**
MECA0526-1	*High Temperature Processes in Recycling & Remanufacturing* (english language) - Anne MERTENS - [1d FW]	Q1	26	26	[+]	**5**
CHIM9303-1	*Advanced Question in Chemical Engineering : water sanitation and sludge treatment* - Frank DELVIGNE, Stéphanie LAMBERT, Angélique LÉONARD, Dominique TOYE - [1d FW]	Q1	20	15	[+]	**3**
CHIM0699-2	*Life cycle assessment - Ecodesign* (english language) - Angélique LÉONARD	Q1	10	30	-	**3**
CHIM9309-1	*Process Intensification and Hybrid Processes* (english language) - Andreas PFENNIG	Q1	25	8	-	**3**
MECA0450-3	*Renewable energies* (english language) - Pierre DEWALLEF - [24h Proj., 1d FW]	Q2	24	12	[+]	**5**
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	Q1	20	30	-	**4**
CHIM0668-1	*Agitation and mixture* - Dominique TOYE - [5h Labo.] **Corequisite :** CHIM9277-1 - Génie chimique (étude des réacteurs)	Q1	30	5	[+]	**4**
CHIM0054-2	*Introduction to economic analysis, application to industrial processes* (english language) - Grégoire LÉONARD - [90h Proj.] **Prerequisite :** PROJ0012-1 - Integrated Project	Q1	10	-	[+]	**4**
CHIM9301-1	*Project management and engineering methods in the industry* (english language) - Grégoire LÉONARD - [1d FW] **Prerequisite :** PROJ0012-1 - Integrated Project	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)	Q1	15	-	[+]	**2**
PHYS0038-2	*Introduction into polymer physics including plasturgy* (english language) - Klaus KECKANTOINE	Q1	30	-	-	**3**
CHIM0072-2	*Nanomaterials and divided materials engineering* - Benoît HEINRICHS, Stéphanie LAMBERT **Corequisite :** CHIM0698-1 - Introduction to the Physical Chemistry of Nanomaterials	Q1	15	15	-	**3**

[...] Students may also choose up to 10 credits from courses in another master's programme in the Faculty.

Bloc d'aménagement du programme de l'année

Additional ECTS Master in chemical and materials science 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 :

Notice : students who have not followed the courses CHIM0022-4, CHIM0009-3, CHIM9320-1 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.

MATH0066-1	*Complement of mathematics 2* - Patricia TOSSINGS	Q2	26	26	-	**4**
CHIM0286-1	*Rudiments of thermodynamics* - Benoît HEINRICHS	Q1	26	26	-	**5**
MECA0001-2	*Mechanics of materials* - JeanPierre JASPART - [2h Labo., 12h Proj.]	Q1	27	25	[+]	**5**
MECA0011-2	*Fluid Mechanics : Basics* - Michel PIROTTON - [25h Proj.]	Q2	20	30	[+]	**4**
CHIM9322-1	*Industrial chemistry processes: the structure of the chemical industry and the balance approach* - MarieNoëlle DUMONT, Angélique LÉONARD, Dominique TOYE - [1d FW]	Q2	38	10	[+]	**5**
CHIM0604-2	*Chemistry and organic materials* - Lionel DELAUDE	Q2	33	19	-	**5**
CHIM0022-4	*Transport phenomena* (english language) - *Part A* - Andreas PFENNIG - *Part B* - Andreas PFENNIG	Q2	 30 -	 - 20	 - -	**5**
CHIM0009-3	*Applied Chemical Thermodynamics* - MarieNoëlle DUMONT, Nathalie JOB, Grégoire LÉONARD	Q2	26	26	-	**5**
MATH0006-3	*Introduction to numerical analysis* (english language) - Quentin LOUVEAUX	Q1	20	20	-	**4**
CHIM9320-1	*Introduction to chemical reaction engineering* - Nathalie JOB, Dominique TOYE	Q1	24	24	-	**5**
CHIM9315-1	*Sustainable management of fuels: supply, synthesis and use* - Angélique LÉONARD, Grégoire LÉONARD	Q1	50	-	-	**5**

[...] Choose maximum 8 credit to complete the study programme

Additional ECTS for students holding a Bachelor `s degree in chemistry

Compulsory courses

MATH0066-1	*Complement of mathematics 2* - Patricia TOSSINGS	Q2	26	26	-	**4**
CHIM0286-1	*Rudiments of thermodynamics* - Benoît HEINRICHS	Q1	26	26	-	**5**
MECA0001-2	*Mechanics of materials* - JeanPierre JASPART - [2h Labo., 12h Proj.]	Q1	27	25	[+]	**5**
MECA0011-2	*Fluid Mechanics : Basics* - Michel PIROTTON - [25h Proj.]	Q2	20	30	[+]	**4**
CHIM9322-1	*Industrial chemistry processes: the structure of the chemical industry and the balance approach* - MarieNoëlle DUMONT, Angélique LÉONARD, Dominique TOYE - [1d FW]	Q2	38	10	[+]	**5**
CHIM0022-4	*Transport phenomena* (english language) - *Part A* - Andreas PFENNIG - *Part B* - Andreas PFENNIG	Q2	 30 -	 - 20	 - -	**5**
CHIM0009-3	*Applied Chemical Thermodynamics* - MarieNoëlle DUMONT, Nathalie JOB, Grégoire LÉONARD	Q2	26	26	-	**5**
MATH0006-3	*Introduction to numerical analysis* (english language) - Quentin LOUVEAUX	Q1	20	20	-	**4**
CHIM9320-1	*Introduction to chemical reaction engineering* - Nathalie JOB,	Q1	24	24	-	**5**

TOYE