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 Mining and Geological Engineering, students must follow or approve 60 core training credits (including the placement and final dissertation), 30 credits from one of the specialised courses on Mineral Resources and Recycling, Environmental and Geological Engineering or 30 credits from a course of their choice.

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 'Georesources and Environmental Geology', taught within the framework of the Bachelor in Civil Engineering.
The master¿s is `bilingual French/English'. Therefore, students who actively master French and/or English and another language passively can take all the classes. On a practical level, students can ask staff questions in both languages. Course material exists in both French and English (pdf, ppt and reference books). Students must indicate in which language they would like the questions to be.
An organised, but optional, final-year trip allows the future professionals to take part in guided tours of companies and exceptional foreign geological sites.

Focus courses

GEOL0289-1	*Analytic mineralogy* (english language) - Frédéric HATERT - [15h Labo.] **Corequisite :** GEOL0312-1 - Process mineralogy	Q2	30	15	[+]	**5**
GEOL0315-1	*Solid Waste and by products processing* (english language) - Stoyan GAYDARDZHIEV - [20h Labo., 7h Proj., 1,5d FW]	Q1	20	-	[+]	**5**
GEOL0237-2	*Exploitation of mineral deposits* (english language) - Nicolas VASBINDER - [2d FW] **Corequisite :** GEOL0020-7 - Mineral resources	Q1	25	15	[+]	**5**
GEOL0312-1	*Process mineralogy* (english language) - Hassan BOUZAHZAH, Eric PIRARD - [25h Labo., 15h Proj.]	Q1	25	-	[+]	**5**

Cours obligatoires du tronc commun

CHIM9284-2	*Analytical chemistry I - Chemical analysis methods, Theory* - Gauthier EPPE	Q1	26	-	-	**2**
CHIM0740-2	*Analytical chemistry II - Physicochemical techniques of analysis, Part A* - Gauthier EPPE **Corequisite :** CHIM9284-2 - Chimie analytique I - Méthodes chimiques d'analyse	Q2	10	30	-	**3**
GEOL0006-4	*Rocks and sedimentary processes (partie 1)* - [4h Labo.] **Corequisite :** GEOL1026-1 - Compléments de géologie	Q1	30	-	[+]	**2**
GEOL0284-1	*Geology of Wallonia* - AnneChristine DA SILVA - [6d FW] **Corequisite :** GEOL0006-4 - Roches et processus sédimentaires	Q2	20	-	[+]	**3**
GEOL1051-1	*Geological imaging and remote sensing* (english language) - Eric PIRARD - [30h Proj.]	Q2	26	26	[+]	**5**
GCIV0045-4	*Rock mechanics, tunnels, rock slopes, rock foundations* - Bertrand FRANÇOIS - [1d FW, 50h Proj.] **Corequisite :** GCIV0603-2 - Géotechnique et infrastructures	Q2	20	4	[+]	**5**
GEOL0097-2	*Geostatistics* (english language) - Eric PIRARD - [30h Labo.]	Q1	30	-	[+]	**5**
GEOL0286-2	*Geological mapping* - *From theory to fieldwork* - HansBalder HAVENITH - [2d FW] - *Project* - HansBalder HAVENITH - [20h Proj.]	Q2	5 -	20 -	[+] [+]	**5**

Cours au choix du tronc commun

Choose courses totalling 10 credits out of the following :

Students who haven't taken the GEOL0021-7, GCIV0603-2, GEOL1026-1 courses in the 'Geo-resources and Environmental Geology' option in the bachelor's engineering programme or who haven't acquired the corresponding knowledge or skills, must include these three courses in their programme as a priority; these courses are corequisites for the master's compulsory courses.
The GEOL0020-7 and GEOL0314-1 courses are also corequisites for the professional focus in Mineral Resources & Recycling and the GEOL0013-5 course is a corequisite for the Environmental & Geological Engineering focus. Students who don't master the corresponding skills shall choose their courses accordingly.

GCIV0185-7	*Linear numerical methods in Civil and Geological Engineering* - Laurent DUCHENE, Michel PIROTTON - [30h Proj.]	Q1	22	30	[+]	**5**
GCIV0184-5	*Building Materials* - Luc COURARD, Anne HABRAKEN - [0,5d FW, 12h Labo., 12h Proj.]	Q2	36	16	[+]	**5**
GEOL0029-4	*Tectonics* - *Part A* - Olivier BOLLE - *Field work* - Olivier BOLLE - [2d FW]	Q1	 30 -	 20 -	 - [+]	**5**
MECA0526-1	*High Temperature Processes in Recycling & Remanufacturing* (english language) - Anne MERTENS - [1d FW]	Q1	26	26	[+]	**5**
CHIM0695-2	*Modelling of chemical & energy processes* (english language) - Grégoire LÉONARD	Q1	20	32	-	**5**
GEOL0021-7	*Geophysical prospecting* - Frédéric NGUYEN - [5d FW, 20h Proj.]	Q2	26	20	[+]	**5**
GEOL0020-7	*Mineral resources* (english language) - Eric PIRARD - [1d FW, 26h Labo., 32h Proj.]	Q1	26	-	[+]	**5**
GEOL0319-2	(pas organisé en 2024-2025) *Geological hazard and risk assessment* (english language) - *From theory to field work* - HansBalder HAVENITH - [2d FW, 20h Proj.] - *Project* - HansBalder HAVENITH - [20h Proj.]	Q2	 20 -	 5 -	 [+] [+]	**5**
GEOL0013-5	*Hydrogeology* - *Part A* - [1d FW] - *Part B* - [10h Proj.]	Q1	 26 -	 20 -	 [+] [+]	**5**
GCIV0603-2	*Geotechnics and infrastructure* - Bertrand FRANÇOIS - [1d FW, 2h Labo.]	Q2	26	26	[+]	**5**
GEOL0314-1	*Mineral processing I - basics* (english language) - Stoyan GAYDARDZHIEV - [30h Labo., 10h Proj., 1,5d FW]	Q1	30	-	[+]	**5**
GEOL1026-1	*Complement of geology* - *Part 1 : Elements of mineralogy* - Frédéric HATERT - *Part 2 : Elements of magmatic and metamorphic petrology* - Jacqueline VANDER AUWERA	Q2	 18 8	 18 8	 - -	**5**
GEOL1052-1	*Project in inverse modelling : from field to algorithms* (english language) - Frédéric NGUYEN - [30h Proj., 4d FW] **Corequisite :** GEOL0021-7 - Prospection géophysique	Q1	5	40	[+]	**5**

[...] or any individual course from the non-chosen focus in block 1

or from the courses of the list below relating to the theme "Urban and Environmental Engineering"

UEEN0007-1	*District Energy Systems* (english language) - N... - [8h Proj., 1d FW]	Q1	16	8	[+]	**3**
UEEN0008-1	*Urban water systems* (english language) - Benjamin DEWALS - [12h Proj.]	Q1	18	18	[+]	**3**
UEEN0002-1	*Land rehabilitation in urban environments* (english language) - Serge BROUYÈRE, Frédéric COLLIN - [10h Labo., 20h Proj., 2d FW]	Q1	20	10	[+]	**5**
UEEN0004-1	*Urban planning and transportation* (english language) - Mario COOLS, Jacques TELLER - [1d FW]	Q1	26	26	[+]	**5**

UEEN0005-1	*Participatory Design at an Urban Scale* (english language) - Catherine ELSEN - [20h Proj., 1d FW]	Q1	20	10	[+]	**3**
UEEN0006-1	*UEE Integrated Project* (english language) - Luc COURARD - [100h Proj., 1d FW]	Q1	-	90	[+]	**6**
GEOG2053-1	*Introduction to Urban GIS* - Roland BILLEN	Q1	20	20	-	**3**

Block 2

Focus courses

GEOL1043-1	*Extractive metallurgy* (english language) - Stoyan GAYDARDZHIEV, Andreas PFENNIG - [1d FW] **Corequisite :** GEOL0314-1 - Mineral processing I - basics	Q1	30	20	[+]	**5**
GEOL1044-1	*Raw Materials in a Circular Economy* (english language) - Maud BAY, Sandra BELBOOM, Eric PIRARD - [1d FW]	Q1	26	26	[+]	**5**

Cours obligatoires du tronc commun

ATFE0011-1	*Master Thesis (including an introduction to research methodology)* - Serge BROUYÈRE, COLLÉGIALITÉ - [600h Proj.]	TA	-	-	[+]	**20**
ASTG0017-1	*Internship* - Serge BROUYÈRE	TA	-	-	-	**5**
GEST3162-1	*Principles of management* (english language) - Michaël PARMENTIER - [25h Proj.]	Q1	30	-	[+]	**5**

Cours au choix du tronc commun

Choose courses totalling 20 credits out of the following :

GCIV0185-7	*Linear numerical methods in Civil and Geological Engineering* - Laurent DUCHENE, Michel PIROTTON - [30h Proj.]	Q1	22	30	[+]	**5**
GCIV0184-5	*Building Materials* - Luc COURARD, Anne HABRAKEN - [0,5d FW, 12h Labo., 12h Proj.]	Q2	36	16	[+]	**5**
GEOL0029-4	*Tectonics* - *Part A* - Olivier BOLLE - *Field work* - Olivier BOLLE - [2d FW]	Q1	 30 -	 20 -	 - [+]	**5**
MECA0526-1	*High Temperature Processes in Recycling & Remanufacturing* (english language) - Anne MERTENS - [1d FW]	Q1	26	26	[+]	**5**
CHIM0695-2	*Modelling of chemical & energy processes* (english language) - Grégoire LÉONARD	Q1	20	32	-	**5**
GEOL0281-4	*Environmental impact of industrial and mining activities* - Stoyan GAYDARDZHIEV - [1d FW, 25h Labo., 5h Proj.]	Q1	25	-	[+]	**5**
GEOL1045-1	*Economic and societal issues in mining and recycling* (english language) - Eric PIRARD - [30h Proj., 2d FW]	Q1	15	-	[+]	**5**
GEOL1052-1	*Project in inverse modelling : from field to algorithms* (english language) - Frédéric NGUYEN - [30h Proj., 4d FW] **Corequisite :** GEOL0021-7 - Prospection géophysique	Q1	5	40	[+]	**5**

[...] or any individual course from the non-chosen focus in block 2

[...] In agreement with the Jury, the student may choose a maximum of 10 credits from the list of other Masters courses in the Faculty of Applied Sciences or ou du catalogue UNIC.

or from the courses of the list below relating to the theme "Urban and Environmental Engineering"

UEEN0007-1	*District Energy Systems* (english language) - N... - [8h Proj., 1d FW]	Q1	16	8	[+]	**3**
UEEN0008-1	*Urban water systems* (english language) - Benjamin DEWALS - [12h Proj.]	Q1	18	18	[+]	**3**
UEEN0002-1	*Land rehabilitation in urban environments* (english language) -	Q1	20	10	[+]	**5**

	ROUYÈRE, Frédéric COLLIN - [10h Labo., 20h Proj., 2d FW]					
UEEN0004-1	*Urban planning and transportation* (english language) - Mario COOLS, Jacques TELLER - [1d FW]	Q1	26	26	[+]	**5**
UEEN0005-1	*Participatory Design at an Urban Scale* (english language) - Catherine ELSEN - [20h Proj., 1d FW]	Q1	20	10	[+]	**3**
UEEN0006-1	*UEE Integrated Project* (english language) - Luc COURARD - [100h Proj., 1d FW]	Q1	-	90	[+]	**6**
GEOG2053-1	*Introduction to Urban GIS* - Roland BILLEN	Q1	20	20	-	**3**

Bloc d'aménagement du programme de l'année

Additional ECTS Master in mining and geological engineering (generic programme)

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 :

MATH0006-3	*Introduction to numerical analysis* (english language) - Quentin LOUVEAUX	Q1	20	20	-	**5**
MECA0001-2	*Mechanics of materials* - Laurent DUCHENE - [2h Labo., 12h Proj.]	Q1	27	25	[+]	**5**
MECA0011-2	*Fluid Mechanics : Basics* - Michel PIROTTON - [25h Proj.]	Q2	20	30	[+]	**4**
GEOL0021-7	*Geophysical prospecting* - Frédéric NGUYEN - [5d FW, 20h Proj.]	Q2	26	20	[+]	**5**
GEOL0020-7	*Mineral resources* (english language) - Eric PIRARD - [1d FW, 26h Labo., 32h Proj.]	Q1	26	-	[+]	**5**
GEOL0013-5	*Hydrogeology* - *Part A* - [1d FW] - *Part B* - [10h Proj.]	Q1	 26 -	 20 -	 [+] [+]	**5**
GCIV0603-2	*Geotechnics and infrastructure* - Bertrand FRANÇOIS - [1d FW, 2h Labo.]	Q2	26	26	[+]	**5**
GEOL0314-1	*Mineral processing I - basics* (english language) - Stoyan GAYDARDZHIEV - [30h Labo., 10h Proj., 1,5d FW]	Q1	30	-	[+]	**5**
GEOL0001-1	*Geology and Engineering geology* - [2d FW]	Q2	30	22	[+]	**5**
[...]	Choose maximum 16 credits to complete the curriculum					

Additional ECTS Master in mining and geological engineering (aimed at bachelors in geography)

The Bachelors in Geographic Sciences follows the normal Masters programme with the addition of the 44 credits below (Block 0).

MATH0006-3	*Introduction to numerical analysis* (english language) - Quentin LOUVEAUX	Q1	20	20	-	**5**
MECA0001-2	*Mechanics of materials* - Laurent DUCHENE - [2h Labo., 12h Proj.]	Q1	27	25	[+]	**5**
MECA0011-2	*Fluid Mechanics : Basics* - Michel PIROTTON - [25h Proj.]	Q2	20	30	[+]	**4**
GEOL0001-1	*Geology and Engineering geology* - [2d FW]	Q2	30	22	[+]	**5**
GEOL0021-7	*Geophysical prospecting* - Frédéric NGUYEN - [5d FW, 20h Proj.]	Q2	26	20	[+]	**5**
GEOL0020-7	*Mineral resources* (english language) - Eric PIRARD - [1d FW, 26h Labo.,	Q1	26	-	[+]	**5**

	32h Proj.]					
GEOL0013-5	*Hydrogeology* - *Part A* - [1d FW] - *Part B* - [10h Proj.]	Q1	 26 -	 20 -	 [+] [+]	**5**
GCIV0603-2	*Geotechnics and infrastructure* - Bertrand FRANÇOIS - [1d FW, 2h Labo.]	Q2	26	26	[+]	**5**
GEOL0314-1	*Mineral processing I - basics* (english language) - Stoyan GAYDARDZHIEV - [30h Labo., 10h Proj., 1,5d FW]	Q1	30	-	[+]	**5**

Additional credits Master in mining and geological engineering (aimed at masters in engineering: bioengineering)

The programme for Bachelors in Engineering Sciences, specialised in bioengineering, includes 135 credits. This is established by the President of the jury by taking into account skills previously acquired by the student and by completing the programme from the courses listed in the planning block presented below.

MATH0006-3	*Introduction to numerical analysis* (english language) - Quentin LOUVEAUX	Q1	20	20	-	**5**
MECA0001-2	*Mechanics of materials* - Laurent DUCHENE - [2h Labo., 12h Proj.]	Q1	27	25	[+]	**5**
MECA0011-2	*Fluid Mechanics : Basics* - Michel PIROTTON - [25h Proj.]	Q2	20	30	[+]	**4**
GEOL0001-1	*Geology and Engineering geology* - [2d FW]	Q2	30	22	[+]	**5**
GEOL0021-7	*Geophysical prospecting* - Frédéric NGUYEN - [5d FW, 20h Proj.]	Q2	26	20	[+]	**5**
GEOL0020-7	*Mineral resources* (english language) - Eric PIRARD - [1d FW, 26h Labo., 32h Proj.]	Q1	26	-	[+]	**5**
GEOL0013-5	*Hydrogeology* - *Part A* - [1d FW] - *Part B* - [10h Proj.]	Q1	 26 -	 20 -	 [+] [+]	**5**
GCIV0603-2	*Geotechnics and infrastructure* - Bertrand FRANÇOIS - [1d FW, 2h Labo.]	Q2	26	26	[+]	**5**
GEOL0314-1	*Mineral processing I - basics* (english language) - Stoyan GAYDARDZHIEV - [30h Labo., 10h Proj., 1,5d FW]	Q1	30	-	[+]	**5**

Additional credits Master in mining and geological engineering (aimed at Bachelors in geology)

The programme for Bachelors in Geology is worth 135 credits. This is established by the President of the jury by taking into account skills previously acquired by the student from the Block 1 courses (analytical chemistry, rocks and sedimentary processes) and by completing the programme from the courses listed in the planning block presented below.

MATH0006-3	*Introduction to numerical analysis* (english language) - Quentin LOUVEAUX	Q1	20	20	-	**5**
MECA0001-2	*Mechanics of materials* - Laurent DUCHENE - [2h Labo., 12h Proj.]	Q1	27	25	[+]	**5**
MECA0011-2	*Fluid Mechanics : Basics* - Michel PIROTTON - [25h Proj.]	Q2	20	30	[+]	**4**
GEOL0001-1	*Geology and Engineering geology* - [2d FW]	Q2	30	22	[+]	**5**
GEOL0021-7	*Geophysical prospecting* - Frédéric NGUYEN - [5d FW, 20h Proj.]	Q2	26	20	[+]	**5**
GEOL0020-7	*Mineral resources* (english language) - Eric PIRARD - [1d FW, 26h Labo., 32h Proj.]	Q1	26	-	[+]	**5**
GEOL0013-5	*Hydrogeology* - *Part A* - [1d FW] - *Part B* - [10h Proj.]	Q1	 26 -	 20 -	 [+] [+]	**5**
GCIV0603-2	*Geotechnics and infrastructure* - Bertrand FRANÇOIS - [1d FW, 2h Labo.]	Q2	26	26	[+]	**5**

GEOL0314-1 *Mineral processing I - basics* (english language) - Stoyan GAYDARDZHIEV - Q1 30 - [+] **5**
[30h Labo., 10h Proj., 1,5d FW]