Study programmes 2011-2012

Faculty of Applied Sciences

Bachelor in engineering sciences, civil engineer orientation

First Year

Compulsory courses

CHIM0603-1	*Chemistry* - Benoît HEINRICHS - [15h Labo.]	50	40	[+]	**9**
ECON0323-1	*First principles of economics* - Bernard JURION	30	-	-	**3**
INFO2009-1	*Introduction to computer science* - Benoît DONNET	25	20	-	**4**
INFO0061-3	*Computers organization* - Bernard BOIGELOT	25	20	-	**5**
LANG0038-1	*English* - Christine FILOT, ISLV	60	-	-	**5**
MATH0001-2	*Graphic Communication* - Eric BÉCHET	20	20	-	**4**
MATH0002-3	*Mathematical Analysis I* - Eric DELHEZ	50	40	-	**9**
MATH0003-1	*Geometry* - Pierre LECOMTE	25	15	-	**4**
MATH0013-1	*Algebra* - Eric DELHEZ	30	20	-	**5**
PHYS2020-1	*Physics 1 : Mechanics* - Hervé CAPS	20	20	-	**4**
PHYS2021-1	*Physics 2 : Electricity and electromagnetism* - Hervé CAPS	30	30	-	**5**
PROJ0001-1	*Introduction to numerical methods and project* - Olivier BRULS, Quentin LOUVEAUX, Frédéric NGUYEN	10	30	-	**3**

Engineering jobs and careers : compulsory seminars
A visit to a business

Notice : Compulsory buiness visits envisaged for the 2nd smester in 1st BAC and the Ist semester of BAC 2 are organised so that students can better become acquainted with the engineering professions and to help them choose thire options and Masters. They are not graded and thus have no ECTS value.

Second year

Compulsory courses

CHIM0286-1	*Rudiments of thermodynamics* - Benoît HEINRICHS	30	30	-	**5**
GENV0001-1	*Environmental Engineering* - Alain DASSARGUES, Benjamin DEWALS, Angélique LÉONARD	30	-	-	**4**
LANG0039-2	*English 2* (english language) - Christine FILOT, ISLV	30	-	-	**3**
MATH0006-2	*Introduction to numerical analysis* - Quentin LOUVEAUX	25	15	-	**4**
MATH0007-4	*Mathematical analysis II* - Françoise BASTIN	30	30	-	**5**
MECA0001-1	*Mechanics of materials* - Anne HABRAKEN, Jean-Pierre JASPART	30	30	-	**5**
MECA0003-2	*Rational Mechanics* - Eric DELHEZ	20	30	-	**4**
MECA0011-2	*Fluid Mechanics : Basics* - Michel PIROTTON	20	30	-	**4**
PHYS2022-2	*Physics 3 : Waves and quanta* - Laurent DREESEN	20	10	-	**3**
MATH0062-1	*Calculating probabilities* - Kristel VAN STEEN, Louis WEHENKEL	15	15	-	**3**

A visit to a business

Optional courses

Choose two of the following options :

Notice : One will be your minor option. The other, linked to your 3rd year further study option, will be your major option. Minor / major combinations must be endorsed by the Jury.

Option Chemistry and Material Sciences

PHYS0904-4	*Physics of materials* - Jacqueline LECOMTE#BECKERS - [1d FW]	30	30	[+]	**5**
CHIM0680-1	*Introduction to industrial processes* - Dominique TOYE	10	15	-	**2**
CHIM0012-3	*Chemical Kinetics* - Jean-Paul PIRARD	20	15	-	**3**

Option Mechanics

MECA0002-1	*Applied Thermodynamics and Introduction to Heat Engines* - Olivier LÉONARD	30	30	-	**5**
MECA0012-5	*Solid mechanics* - Laurent DUCHENE, Anne HABRAKEN	30	30	-	**5**

Option Physics

PHYS2026-1	*Physics 4 : Microscopic physics (partime a : waves optics, partime b : introduction to nuclear physics)* - Ngoc Duy NGUYEN	30	30	-	**5**
MECA0012-5	*Solid mechanics* - Laurent DUCHENE, Anne HABRAKEN	30	30	-	**5**

Option Electricity and Electronics

ELEC0053-2	*Electric circuits* - Patricia ROUSSEAUX	30	30	-	**5**
ELEN0040-1	*Digital Electronics* - Jacques DESTINÉ	30	30	-	**5**

Option Computing

INFO0902-1	*Data structures and algorithms* - Pierre GEURTS	30	30	-	**5**
INFO0062-1	*Object-Oriented Programming* - Bernard BOIGELOT	30	30	-	**5**

Option Building

GCIV0184-5	*Building Materials* - Luc COURARD - [1d FW]	30	30	[+]	**5**
MECA0012-5	*Solid mechanics* - Laurent DUCHENE, Anne HABRAKEN	30	30	-	**5**

Option Geological Engineering

GEOL0001-1	*Geology and Geology for Engineers* - Alain DASSARGUES - [2d FW]	35	25	[+]	**5**
GEOL0021-7	*Geophysical exploration* - Lucien HALLEUX, Frédéric NGUYEN - [5d FW]	30	30	[+]	**5**

Option Biomedical Engineering

BIOC0002-1	*Biochemistry* - Paulette CHARLIER	30	30	-	**5**
GBIO0001-1	*Biophysics* (english language) - Liesbet GERIS	30	30	-	**5**

Option Architecture

ARCH0067-5	*Architecture and Urban Design History I* - Jean-Claude CORNESSE	45	-	-	**5**
GCIV2030-2	*Structural Design of Buildings* - Thibaut BROGNEAUX, Jean-Claude CORNESSE	15	30	-	**5**

Notice : Students who follow options which have one or more courses in common complete their programme by choosing one or more courses from BAC programme for Engineering Sciences - Civil Engineering or language courses organised by the Ulg in other education pathways. The resulting programme must equal 60 credits and be approved by the Jury.

Third year

Compulsory courses

GEST0105-1	*Elements of Management : Social Aspects* - Annie CORNET	20	-	-	**2**
MATH0008-2	*Introduction to probability and statistics* (english language) - Kristel VAN STEEN	15	15	-	**3**

Optional courses

The follow-up to the two options begun in the second year :

Option Chemistry and Material Sciences

CHIM0022-2	*Introduction to Chemical Engineering* - Michel CRINE	30	30	-	**5**
CHIM0009-1	*Applied chemical thermodynamics* - Georges HEYEN	30	30	-	**5**
CHIM0012-2	*Chemical Kinetics* - Jean-Paul PIRARD	30	30	-	**5**
CHIM0605-1	*Chemistry and inorganic materials* - Rudi CLOOTS	30	30	-	**5**

Option Mechanics

MECA0018-1	*Industrial Forming Processes* - Jean-François DEBONGNIE	30	30	-	**5**
MECA0445-1	*Transfers of heat and matter* - Michel HOGGE	30	30	-	**5**
MECA0155-1	*Dynamics of Mechanical Systems* - Jean-Claude GOLINVAL	30	30	-	**5**
MECA0036-1	*Finite Element Method* (english language) - Jean-Philippe PONTHOT	30	30	-	**5**

Option Physics

MECA0025-1	*Fluid Mechanics* - Eric DELHEZ	30	30	-	**5**
PHYS0211-3	*Quantum Mechanics* - John MARTIN	30	30	-	**5**
ELEN0076-1	*Electromagnetism* - Patricia ROUSSEAUX, Benoît VANDERHEYDEN	30	30	-	**5**
MECA0445-1	*Transfers of heat and matter* - Michel HOGGE	30	30	-	**5**

Option Electricity and Electronics

ELEN0040-1	*Digital Electronics* - Jacques DESTINÉ	30	30	-	**5**
ELEC0052-1	*Analysis and Design of Electrical Measuring Systems* - Philippe VANDERBEMDEN	30	30	-	**5**
ELEC0431-1	*Electromagnetic energy transformation* - Christophe GEUZAINE	30	30	-	**5**
ELEN0008-1	*Principles of analog and digital telecommunications systems* - Marc VAN DROOGENBROECK	30	30	-	**5**

Option Computing

ELEN0040-1	*Digital Electronics* - Jacques DESTINÉ	30	30	-	**5**
INFO0012-1	*Computation structures* (english language) - Pierre WOLPER	30	30	-	**5**
INFO0010-1	*Introduction to computer networking* (english language) - Guy LEDUC	30	30	-	**5**
INFO0030-4	*Programming Projects* - Benoît DONNET	10	20	-	**2**
INFO0004-1	*Object-oriented programming project* - Laurent MATHY	10	30	-	**3**

Option Building

GCIV0624-1	*Structural mechanics* - Jean-Marc FRANSSEN	40	50	-	**7**
GCIV0604-1	*Hydraulics* - Michel PIROTTON	15	15	-	**3**
GCIV0603-2	*Geotechnics and infrastructure* - Robert CHARLIER - [1d FW]	30	30	[+]	**5**
GCIV0097-1	*Steel and concrete constructions I* - Jean-Pierre JASPART - Suppl : Sorin-Ioan DAN	30	30	-	**5**

Option Geological Engineering

GEOL0020-5	*Mineral resources* - Eric PIRARD	20	10	-	**3**
GEOL0013-5	*Hydrogeology* - Alain DASSARGUES - [1d FW]	30	30	[+]	**5**
GEOL0253-2	*Spatial analysis of geo-environmental data* - Eric PIRARD	20	20	-	**3**
GEOL0274-1	*Introduction to mineralogy, igneous and metamorphic petrology* - André-Mathieu FRANSOLET, Jacqueline VANDER AUWERA	30	30	-	**4**
GEOL0275-1	*Introduction to paleontology* - Emmanuelle JAVAUX	10	10	-	**2**
GEOL0249-2	*Personal project work in documentary research* - Annick ANCEAU, Eric PIRARD	5	25	-	**3**

Option Architecture

ARCH0070-1	*Workshops in architecture* - Jacques TELLER	-	90	-	**8**
ARCH0071-2	*Architecture and Urban Design History II* - Jean-Claude CORNESSE	45	-	-	**4**
ARCH0003-4	*Method of construction of buildings I (Part 1)* - N... - Suppl : Mauro BACCARINI - [2,5d FW]	30	30	[+]	**5**
ARCH0069-1	*Project management I* - N... - Suppl : Pierre LECLERCQ, Dimitri SCHMITZ - [2,5d FW]	15	15	[+]	**3**

Option Biomedical Engineering

GBIO0002-1	*Genetics and molecular biology* - Michel GEORGES - Suppl : Marc MULLER	30	30	-	**5**
GBIO0003-1	*Molecular and cellular physiology* - Olivier PEULEN	30	30	-	**5**
GBIO0004-1	*Physiology of the systems* - Philippe KOLH	30	30	-	**5**
GBIO0005-1	*Introduction to neurosciences* - Shibeshih BELACHEW, Pierre MAQUET	30	30	-	**5**

Choose one advanced study option out of the following :

Option Chemistry and Material Sciences, further study

	Prerequisite "Option Chimie et science des matériaux"				
CHIM0606-1	*Analytical Chemistry* - Gauthier EPPE	30	60	-	**7**
DROI0724-1	*Law and engineering* - Christine BIQUET, Jacques CLESSE, Pascale LECOCQ	30	-	-	**3**
PHYS0904-4	*Physics of materials* - Jacqueline LECOMTE#BECKERS - [1d FW]	30	30	[+]	**5**

Option Mechanics (Advanced Study)

	Prerequisite "Option Mécanique"				
MECA0444-1	*Mechanical design* - Jean-François DEBONGNIE	30	30	-	**5**
PHYS0904-4	*Physics of materials* - Jacqueline LECOMTE#BECKERS - [1d FW]	30	30	[+]	**5**
ELEN0061-2	*Introduction to Stochastic Processes* - Louis WEHENKEL	15	15	-	**2**
DROI0724-1	*Law and engineering* - Christine BIQUET, Jacques CLESSE, Pascale LECOCQ	30	-	-	**3**

Option Physics (Advanced Study)

	Prerequisite "Option Physique"				
MECA0446-1	*Continuum Mechanics* - Jean-Philippe PONTHOT	30	30	-	**5**
ELEN0061-2	*Introduction to Stochastic Processes* - Louis WEHENKEL	15	15	-	**2**
DROI0724-1	*Law and engineering* - Christine BIQUET, Jacques CLESSE, Pascale LECOCQ	30	-	-	**3**
PHYS0055-1	*Introduction to Condensed Matter Physics* - Matthieu VERSTRAETE	30	30	-	**5**

Option Electricity and Electronics (Advanced Study)

	Prerequisite "Option Electricité et électronique"				
ELEN0070-1	*Signal Processing* - Jacques VERLY	30	30	-	**5**
ELEN0076-1	*Electromagnetism* - Patricia ROUSSEAUX, Benoît VANDERHEYDEN	30	30	-	**5**
ELEN0061-2	*Introduction to Stochastic Processes* - Louis WEHENKEL	15	15	-	**2**
DROI0724-1	*Law and engineering* - Christine BIQUET, Jacques CLESSE, Pascale LECOCQ	30	-	-	**3**

Option Computing (Advanced Study)

	Prerequisite "Option Informatique"				
INFO0054-1	*Functional programming* - Pascal GRIBOMONT	30	30	-	**5**
ELEN0008-1	*Principles of analog and digital telecommunications systems* - Marc VAN DROOGENBROECK	30	30	-	**5**
ELEN0061-2	*Introduction to Stochastic Processes* - Louis WEHENKEL	15	15	-	**2**
DROI0724-1	*Law and engineering* - Christine BIQUET, Jacques CLESSE, Pascale LECOCQ	30	-	-	**3**

Option Building (Advanced Study)

	Prerequisite "Option Constructions"				
GCIV0099-1	*Steel and concrete constructions II* - Jean-Pierre JASPART, N... - Suppl : Sorin-Ioan DAN	30	30	-	**5**
GCIV0608-1	*Integrated building projet* - Frédéric COLLIN, Jean-Marc FRANSSEN, Jean-Pierre JASPART, Michel PIROTTON	-	60	-	**4**
DROI0724-1	*Law and engineering* - Christine BIQUET, Jacques CLESSE, Pascale LECOCQ	30	-	-	**3**
GCIV0623-1	*Experimental geotechnics* - Frédéric COLLIN, Séverine LEVASSEUR	10	20	-	**3**

Option Advanced Studies in Geological Engineering

	Prerequisite "Option Génie géologique"				
GCIV0603-2	*Geotechnics and infrastructure* - Robert CHARLIER - [1d FW]	30	30	[+]	**5**
META0431-2	*Mineral processing (processes)* - Stoyan GAYDARDZHIEV - [1d FW]	30	30	[+]	**5**
BIOL0212-1	*Introduction to environmental microbiology* - Monique CARNOL	30	-	-	**2**
DROI0724-1	*Law and engineering* - Christine BIQUET, Jacques CLESSE, Pascale LECOCQ	30	-	-	**3**

Biomedical engineering option, in-depth approach

	Prerequisite "Option Génie biomédical"				
ELEN0061-2	*Introduction to Stochastic Processes* - Louis WEHENKEL	15	15	-	**2**
DROI0724-1	*Law and engineering* - Christine BIQUET, Jacques CLESSE, Pascale LECOCQ	30	-	-	**3**
[...]	Choose two additional courses, not already followed, from the optional courses' programme of the Bachelor in engineering sciences, civil engineer orientation. This choice must be approved by the cycle's Jury President.				

Notice : Students who follow options which have one or more courses in common complete their programme by choosing one or more courses from BAC programme for Engineering Sciences - Civil Engineering or language courses organised by the Ulg in other education pathways. Particularly, students can choose between the two courses below, that are specific to engineers.

* LANG1957-1 *Dutch Engineering* (Mrs C. COLIN, 60h, 5 ECTS)
* LANG1958-1 *Germand Engineering* (Mrs F. CARL, 60 h, 5 ECTS)

The resulting programme must total at least 60 ECTS and must be approved by the cycle's Jury President.

Third year (2012-2013 prospects)

Compulsory courses

SYST0002-1	*Linear systems* - Rodolphe SEPULCHRE	30	30	-	**5**
MATH0487-1	*Eléments de statistiques* (english language)	15	15	-	**3**
GENV0002-1	*Sustainable energy* (english language)	30	-	-	**3**
DROI0724-1	*Law and engineering* - Christine BIQUET, Jacques CLESSE, Pascale LECOCQ	30	-	-	**2**
One stochastic processes training course :					
ELEN0061-2	*Introduction to Stochastic Processes* - Louis WEHENKEL	15	15	-	**2**
or other courses in direct relation with the focus and options					

Optional courses

The follow-up to the two options begun in the second year :

Option Chemistry and Material Sciences

CHIM0022-2	*Introduction to Chemical Engineering* - Michel CRINE	30	30	-	**5**
CHIM0009-2	*Thermodynamique chimique appliquée* - Georges HEYEN	20	15	-	**3**
CHIM0606-2	*Chimie analytique* - Gauthier EPPE	30	15	-	**4**
CHIM0023-3	*Génie chimique (étude des réacteurs)* - Dominique TOYE	20	15	-	**3**

Option Mechanics

MECA0445-1	*Transfers of heat and matter* - Michel HOGGE	30	30	-	**5**
MECA0155-1	*Dynamics of Mechanical Systems* - Jean-Claude GOLINVAL	30	30	-	**5**
MECA0036-1	*Finite Element Method* (english language) - Jean-Philippe PONTHOT	30	30	-	**5**

Option Physics

PHYS0211-3	*Quantum Mechanics* - John MARTIN	30	30	-	**5**
ELEN0076-1	*Electromagnetism* - Patricia ROUSSEAUX, Benoît VANDERHEYDEN	30	30	-	**5**
MECA0445-1	*Transfers of heat and matter* - Michel HOGGE	30	30	-	**5**

Option Electricity and Electronics

ELEN0075-1	*Analog Electronics* - Benoît VANDERHEYDEN	30	30	-	**5**
ELEC0052-1	*Analysis and Design of Electrical Measuring Systems* - Philippe VANDERBEMDEN	30	30	-	**5**
ELEC0431-1	*Electromagnetic energy transformation* - Christophe GEUZAINE	30	30	-	**5**

Option Computing

ELEN0040-1	*Digital Electronics* - Jacques DESTINÉ	30	30	-	**5**
INFO0012-1	*Computation structures* (english language) - Pierre WOLPER	30	30	-	**5**
INFO0030-4	*Programming Projects* - Benoît DONNET	10	20	-	**2**
INFO0004-1	*Object-oriented programming project* - Laurent MATHY	10	30	-	**3**

Option Building

GCIV0604-2	*Hydraulique* - Michel PIROTTON	20	20	-	**4**
GCIV0603-2	*Geotechnics and infrastructure* - Robert CHARLIER - [1d FW]	30	30	[+]	**5**
GCIV0097-1	*Steel and concrete constructions I* - Jean-Pierre JASPART - Suppl : Sorin-Ioan DAN	30	30	-	**6**

Option Geological Engineering

GEOL0020-6	*Ressources minérales* - Eric PIRARD	30	30	-	**5**
GEOL0013-5	*Hydrogeology* - Alain DASSARGUES - [1d FW]	30	30	[+]	**5**
GCIV0603-2	*Geotechnics and infrastructure* - Robert CHARLIER - [1d FW]	30	30	[+]	**5**

Option Architecture

ARCH0070-2	*Ateliers d'architecture I* - Jacques TELLER	-	80	-	**7**
ARCH0003-4	*Method of construction of buildings I (Part 1)* - N... - Suppl : Mauro BACCARINI - [2,5d FW]	30	30	[+]	**5**
ARCH0069-1	*Project management I* - N... - Suppl : Pierre LECLERCQ, Dimitri SCHMITZ - [2,5d FW]	15	15	[+]	**3**

Option Biomedical Engineering

GBIO0002-1	*Genetics and molecular biology* - Michel GEORGES - Suppl : Marc MULLER	30	30	-	**5**
GBIO0003-1	*Molecular and cellular physiology* - Olivier PEULEN	30	30	-	**5**
GBIO0005-1	*Introduction to neurosciences* - Shibeshih BELACHEW, Pierre MAQUET	30	30	-	**5**

Choose one advanced study option out of the following :

Option Chemistry and Material Sciences, further study

	Prerequisite "Option Chimie et science des matériaux, approfondissement"				
CHIM0605-2	*Chimie et matériaux inorganiques* - Rudi CLOOTS	30	-	-	**3**
CHIM0604-2	*Chimie et matériaux organiques* - Lionel DELAUDE	30	30	-	**5**
CHIM0063-1	*General principles of biology and biochemistry* - Paulette CHARLIER	15	-	-	**2**
CHIM0681-1	*Laboratoires combinés de chimie*	-	120	-	**5**

Option Mechanics (Advanced Study)

	Prerequisite "Option Mécanique"				
MECA0018-1	*Industrial Forming Processes* - Jean-François DEBONGNIE	30	30	-	**5**
MECA0025-1	*Fluid Mechanics* - Eric DELHEZ	30	30	-	**5**
PHYS0904-4	*Physics of materials* - Jacqueline LECOMTE#BECKERS - [1d FW]	30	30	[+]	**5**

Option Physics (Advanced Study)

	Prerequisite "Option Physique"				
MECA0446-1	*Continuum Mechanics* - Jean-Philippe PONTHOT	30	30	-	**5**
MECA0025-1	*Fluid Mechanics* - Eric DELHEZ	30	30	-	**5**
PHYS0055-1	*Introduction to Condensed Matter Physics* - Matthieu VERSTRAETE	30	30	-	**5**

Option Electricity and Electronics (Advanced Study)

	Prerequisite "Option Electricité et électronique"				
ELEN0008-1	*Principles of analog and digital telecommunications systems* - Marc VAN DROOGENBROECK	30	30	-	**5**
ELEN0070-1	*Signal Processing* - Jacques VERLY	30	30	-	**5**
ELEN0076-1	*Electromagnetism* - Patricia ROUSSEAUX, Benoît VANDERHEYDEN	30	30	-	**5**

Option Computing (Advanced Study)

	Prerequisite "Option Informatique"				
INFO0010-1	*Introduction to computer networking* (english language) - Guy LEDUC	30	30	-	**5**
INFO0054-1	*Functional programming* - Pascal GRIBOMONT	30	30	-	**5**
ELEN0008-1	*Principles of analog and digital telecommunications systems* - Marc VAN DROOGENBROECK	30	30	-	**5**

Option Building (Advanced Study)

	Prerequisite "Option Constructions"				
GCIV0607-1	*Structural mechanics* - Jean-Marc FRANSSEN	30	30	-	**5**
GEOL0001-1	*Geology and Geology for Engineers* - Alain DASSARGUES - [2d FW]	35	25	[+]	**5**
GCIV0608-1	*Integrated building projet* - Frédéric COLLIN, Jean-Marc FRANSSEN, Jean-Pierre JASPART, Michel PIROTTON	-	60	-	**3**
GCIV0623-2	*Géotechnique expérimentale* - Frédéric COLLIN, Séverine LEVASSEUR	10	10	-	**2**

Option Geological Engineering, further study

	Prerequisite "Option Génie géologique"				
METAO431-2	*Mineral processing (processes)* - Stoyan GAYDARDZHIEV - [1d FW]	30	30	[+]	**5**
BIOL0212-1	*Introduction to environmental microbiology* - Monique CARNOL	30	-	-	**2**
GEOL0007-1	*Compléments de géologie*	30	30	-	**5**
GEOL0249-2	*Personal project work in documentary research* - Annick ANCEAU, Eric PIRARD	5	25	-	**3**

Biomedical engineering option, in-depth approach

	Prerequisite "Option Génie biomédical"				
GBIO0004-1	*Physiology of the systems* - Philippe KOLH	30	30	-	**5**

[...] Choose two additional courses, not already taken, from the optional courses programme of the Bachelor in engineering sciences, civil engineer orientation. This choice must be approved by the cycle's Jury President.

Notice : Students who follow options which have one or more courses in common complete their programme by choosing one or more courses from BAC programme for Engineering Sciences - Civil Engineering or language courses organised by the Ulg in other education pathways. Particularly, students can choose between the two courses below, that are specific to engineers.

Language courses

LANG1957-1	*Dutch Engineering* (dutch language) - Claudine COLIN	60	-	-	**5**
LANG1958-1	*German Engineering* (german language) - Françoise CARL	60	-	-	**5**

The resulting programme must equal 60 ECTS and be approved by the Jury.