

First Year

Compulsory courses

| | | | | | |
|------------|---------------------------------------------------------------------------------------------------------|----|----|---|----------|
| CHIM0603-1 | <i>Chemistry</i> - Edwin DE PAUW, José MARIEN | 60 | 30 | - | 9 |
| ECON0323-1 | <i>First principles of economics</i> - Bernard JURION | 30 | - | - | 3 |
| INFO2008-1 | <i>Computer science</i> - Bernard BOIGELOT, Pierre-Arnoul DE MARNEFFE | 50 | 40 | - | 9 |
| LANG0038-1 | <i>English</i> - Christine FILOT, ISLV | 60 | - | - | 5 |
| MATH0001-2 | <i>Graphic Communication</i> - Eric BÉCHET | 20 | 20 | - | 4 |
| MATH0002-3 | <i>Mathematical Analysis I</i> - Eric DELHEZ | 50 | 40 | - | 9 |
| MATH0003-1 | <i>Geometry</i> - Pierre LECOMTE | 25 | 15 | - | 4 |
| MATH0013-1 | <i>Algebra</i> - Eric DELHEZ | 30 | 20 | - | 5 |
| PHYS2020-1 | <i>Physics 1: Mechanics</i> - Hervé CAPS | 20 | 20 | - | 4 |
| PHYS2021-1 | <i>Physics 2: Electricity and electromagnetism</i> - Hervé CAPS | 30 | 30 | - | 5 |
| PROJ0001-1 | <i>Introduction to numerical methods and project</i> - Olivier BRULS, Quentin LOUVEAUX, Frédéric NGUYEN | 10 | 30 | - | 3 |

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

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

Second Year

Compulsory courses

| | | | | | |
|------------|---------------------------------------------------------------------------------------------------------|----|----|---|------------|
| CHIM0286-1 | <i>Rudiments of thermodynamics</i> - Edwin DE PAUW, José MARIEN | 30 | 30 | - | 5 |
| GENV0001-1 | <i>Environmental Engineering</i> - Alain DASSARGUES, Benjamin J. DEWALS, Albert GERMAIN, Michel PIROTON | 30 | - | - | 2,5 |
| LANG0039-2 | <i>English 2</i> - Christine FILOT, ISLV | 30 | - | - | 2,5 |
| MATH0006-1 | <i>Introduction to numerical analysis</i> - Quentin LOUVEAUX | 30 | 30 | - | 5 |
| MATH0007-4 | <i>Mathematical analysis II</i> - Françoise BASTIN | 30 | 30 | - | 5 |
| MECA0001-1 | <i>Solid mechanics (english)</i> - Serge CESCOTTO | 30 | 30 | - | 5 |
| MECA0003-1 | <i>Rational Mechanics</i> - Eric DELHEZ | 30 | 30 | - | 5 |
| MECA0011-1 | <i>Fluid Mechanics: Basics</i> - Michel PIROTON | 30 | 30 | - | 5 |
| SYST0002-1 | <i>Linear systems</i> - Rodolphe SEPULCHRE | 30 | 30 | - | 5 |

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

| | | | | | |
|------------|---------------------------------------------------------------------|----|----|---|----------|
| CHIM0080-1 | <i>Energy carriers and sustainable development</i> - Albert GERMAIN | 30 | - | - | 3 |
| CHIM0604-1 | <i>Chemistry and organic materials</i> - Christophe DETREMBLEUR | 30 | 60 | - | 7 |

Option Mechanics

| | | | | | |
|------------|-------------------------------------------------------------------------------------------------|----|----|---|----------|
| MECA0002-1 | <i>Applied Thermodynamics and Introduction to Heat Engines</i> - N... - Suppl : Olivier LÉONARD | 30 | 30 | - | 5 |
| MECA0012-5 | <i>Mechanics of materials (english)</i> - Serge CESCOTTO | 30 | 30 | - | 5 |

Option Physics

| | | | | | |
|------------|---------------------------------------------------------|----|----|---|----------|
| PHYS0057-1 | <i>Wave optics and wave mechanics</i> - Laurent DREESEN | 30 | 30 | - | 5 |
|------------|---------------------------------------------------------|----|----|---|----------|

MECA0445-1 *Transfers of heat and matter* - Michel HOGGE 30 30 - 5

Option Electricity and Electronics

ELEC0053-2 *Electric circuits* - Patricia ROUSSEAU 30 30 - 5
ELEN0075-1 *Analog Electronics* - Benoît VANDERHEYDEN 30 30 - 5

Option Computing

INFO0902-1 *Data Structures and Algorithms* - Justus PIATER - Suppl : Bernard BOIGELOT 30 30 - 5
INFO0062-1 *Object-Oriented Programming* - Bernard BOIGELOT 30 30 - 5

Option Building

GCIV0184-2 *Building Materials* - Luc COURARD 30 30 - 5
MECA0012-5 *Mechanics of materials (english)* - Serge CESCOTTO 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 *Introduction to Biomedical Engineering* - Kristel VAN STEEN 30 30 - 5

Option Architecture

ARCH0067-5 *Urban Design History* - Jean-Claude CORNESSE 45 - - 5
GCIV2030-3 *Structural Design of Buildings* - Thibaut BROGNEAUX, Jean-Claude CORNESSE 30 15 - 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.

Compulsory courses

CHIM0286-1 *Rudiments of thermodynamics* - Edwin DE PAUW, José MARIEN 30 30 - 5
GENV0001-1 *Environmental Engineering* - Alain DASSARGUES, Benjamin J. DEWALS, Albert GERMAIN, Michel PIROTON 30 - - 2
LANG0039-2 *English 2* - Christine FILOT, ISLV 30 - - 2
MATH0006-2 *Introduction to numerical analysis* - Quentin LOUVEAUX 25 15 - 3
MATH0007-4 *Mathematical analysis II* - Françoise BASTIN 30 30 - 5
MECA0001-1 *Solid mechanics (english)* - Serge CESCOTTO 30 30 - 5
MECA0003-1 *Rational Mechanics* - Eric DELHEZ 30 30 - 5
MECA0011-1 *Fluid Mechanics: Basics* - Michel PIROTON 30 30 - 5
SYST0002-1 *Linear systems* - Rodolphe SEPULCHRE 30 30 - 5
PHYS2022-1 *Physics 3: Waves and quanta* - N... 20 20 - 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.

Physics

PHYS0057-1 *Wave optics and wave mechanics* - Laurent DREESEN 30 30 - 5
MECA0445-1 *Transfers of heat and matter* - Michel HOGGE 30 30 - 5

Chemistry and Material Sciences

| | | | | | |
|------------|---------------------------------------------------------------------|----|----|---|----------|
| CHIM0080-1 | <i>Energy carriers and sustainable development</i> - Albert GERMAIN | 30 | - | - | 3 |
| CHIM0604-1 | <i>Chemistry and organic materials</i> - Christophe DETREMBLEUR | 30 | 60 | - | 7 |

Option Mechanics

| | | | | | |
|------------|-------------------------------------------------------------------------------------------------|----|----|---|----------|
| MECA0002-1 | <i>Applied Thermodynamics and Introduction to Heat Engines</i> - N... - Suppl : Olivier LÉONARD | 30 | 30 | - | 5 |
| MECA0012-5 | <i>Mechanics of materials</i> (english) - Serge CESCOTTO | 30 | 30 | - | 5 |

Option Electricity and Electronics

| | | | | | |
|------------|-------------------------------------------------|----|----|---|----------|
| ELEC0053-2 | <i>Electric circuits</i> - Patricia ROUSSEAU | 30 | 30 | - | 5 |
| ELEN0075-1 | <i>Analog Electronics</i> - Benoît VANDERHEYDEN | 30 | 30 | - | 5 |

Option Computing

| | | | | | |
|------------|----------------------------------------------------------------------------------|----|----|---|----------|
| INFO0902-1 | <i>Data Structures and Algorithms</i> - Justus PIATER - Suppl : Bernard BOIGELOT | 30 | 30 | - | 5 |
| INFO0062-1 | <i>Object-Oriented Programming</i> - Bernard BOIGELOT | 30 | 30 | - | 5 |

Option Building

| | | | | | |
|------------|----------------------------------------------------------|----|----|---|----------|
| GCIV0184-2 | <i>Building Materials</i> - Luc COURARD | 30 | 30 | - | 5 |
| MECA0012-5 | <i>Mechanics of materials</i> (english) - Serge CESCOTTO | 30 | 30 | - | 5 |

Option Geological Engineering

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

Option Biomedical Engineering

| | | | | | |
|------------|-------------------------------------------------------------------|----|----|---|----------|
| BIOC0002-1 | <i>Biochemistry</i> - Paulette CHARLIER | 30 | 30 | - | 5 |
| GBIO0001-1 | <i>Introduction to Biomedical Engineering</i> - Kristel VAN STEEN | 30 | 30 | - | 5 |

Option Architecture

| | | | | | |
|------------|---------------------------------------------------------------------------------|----|----|---|----------|
| ARCH0067-5 | <i>Urban Design History</i> - Jean-Claude CORNESSE | 45 | - | - | 5 |
| GCIV2030-3 | <i>Structural Design of Buildings</i> - Thibaut BROGNEAUX, Jean-Claude CORNESSE | 30 | 15 | - | 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 | <i>Elements of Management: Social Aspects</i> - Annie CORNET | 20 | - | - | 2 |
| MATH0008-2 | <i>Probability and Statistics</i> - Tri-An BANH | 15 | 15 | - | 3 |

Optional courses

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

Option Chemistry and Material Sciences

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

Option Mechanics

| | | | | | |
|------------|--------------------------------------------------------------------------|----|----|---|---|
| MECA0018-1 | <i>Industrial Forming Processes</i> - Jean-François DEBONGNIE | 30 | 30 | - | 5 |
| MECA0445-2 | <i>Transfers of heat and matter</i> - Michel HOGGE | 30 | 15 | - | 4 |
| MECA0155-1 | <i>Dynamics of Mechanical Systems</i> - Jean-Claude GOLINVAL | 30 | 30 | - | 5 |
| MECA0443-1 | <i>CAO / Finite Element Methods</i> - Eric BÉCHET, Jean-Philippe PONTHOT | 45 | 30 | - | 6 |

Option Physics

| | | | | | |
|------------|----------------------------------------------------------|----|----|---|---|
| MECA0025-1 | <i>Fluid Mechanics</i> - Jean-André ESSERS | 30 | 30 | - | 5 |
| PHYS0211-3 | <i>Quantum Mechanics</i> - Joseph CUGNON | 30 | 30 | - | 5 |
| ELEN0076-1 | <i>Electromagnetism</i> - Benoît VANDERHEYDEN | 30 | 30 | - | 5 |
| MECA0012-5 | <i>Mechanics of materials (english)</i> - Serge CESCOTTO | 30 | 30 | - | 5 |

Option Electricity and Electronics

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

Option Computing

| | | | | | |
|------------|------------------------------------------------------|----|----|---|---|
| ELEN0040-1 | <i>Digital Electronics</i> - Jacques DESTINÉ | 30 | 30 | - | 5 |
| INFO0012-1 | <i>Computation Structures</i> - Pierre WOLPER | 30 | 30 | - | 5 |
| INFO0010-1 | <i>Introduction to Computer Networks</i> - Guy LEDUC | 30 | 30 | - | 5 |
| INFO0064-1 | <i>Embedded Systems</i> - Bernard BOIGELOT | 30 | 30 | - | 5 |

Option Building

| | | | | | |
|------------|---------------------------------------------------------------------------------------|----|----|---|---|
| MECA0442-1 | <i>Mechanics of materials II</i> - Serge CESCOTTO | 15 | 15 | - | 2 |
| GCIV0604-1 | <i>Hydraulics</i> - Michel PIROTON | 15 | 15 | - | 3 |
| GCIV0607-1 | <i>Structural mechanics</i> - Jean-Marc FRANSSSEN | 30 | 30 | - | 5 |
| GCIV0603-1 | <i>Geotechnics</i> - Robert CHARLIER | 30 | 30 | - | 5 |
| GCIV0097-1 | <i>Steel and concrete constructions I</i> - Jean-Claude DOTREPPE, Jean-Pierre JASPART | 30 | 30 | - | 5 |

Option Geological Engineering

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

Option Architecture

| | | | | | |
|------------|------------------------------------------------------------------------|----|----|-----|---|
| ARCH0070-1 | <i>Workshops in architecture</i> - Serge CESCOTTO | - | 90 | - | 7 |
| ARCH0071-2 | <i>Architecture and Urban Design History II</i> - Jean-Claude CORNESSE | 45 | - | - | 4 |
| ARCH0009-3 | <i>Building techniques II</i> - Jean-Marie HAUGLUSTAINÉ - [2,5d FW] | 30 | 60 | [+] | 7 |
| ARCH0069-1 | <i>Project management</i> - N... - Suppl : Dimitri SCHMITZ - [2d FW] | 15 | 15 | [+] | 2 |

Option Biomedical Engineering

| | | | | | |
|------------|--------------------------------------------------------------------------|----|----|---|---|
| GBIO0002-1 | <i>Genetics and molecular biology</i> - Michel GEORGES, Joseph MARTIAL | 30 | 30 | - | 5 |
| GBIO0003-1 | <i>Molecular and cellular physiology</i> - Pierre ROBE | 30 | 30 | - | 5 |
| GBIO0004-1 | <i>Physiology of the systems</i> - Philippe KOLH | 30 | 30 | - | 5 |
| GBIO0005-1 | <i>Introduction to neurosciences</i> - Shibeshih BELACHEW, Pierre MAQUET | 30 | 30 | - | 5 |

Choose one advanced study option out of the following :

Option Chemistry and Material Sciences (Advanced Study)

| | <u>Prerequisite</u> | "Option Chimie et sciences des matériaux" | | | | |
|------------|-------------------------------------------------------------------------------------------|-------------------------------------------|----|----|---|---|
| CHIM0606-1 | <i>Analytical Chemistry</i> - Bernard GILBERT | | 30 | 60 | - | 6 |
| MECA0014-3 | <i>Introduction to Hydraulic machines and Compressors</i> - Olivier LÉONARD | | 15 | 15 | - | 3 |
| PHYS0904-2 | <i>Physics of materials (partim)</i> - Jacqueline LECOMTE#BECKERS, Jean-Marie LIÉGEOIS | | 20 | 10 | - | 3 |
| DROI0724-1 | <i>law and engineering</i> - Pascale LECOCQ | | 30 | - | - | 3 |

Option Mechanics (Advanced Study)

| | <u>Prerequisite</u> | "Option Mécanique" | | | | |
|------------|-------------------------------------------------------------------------------|--------------------|----|----|---|---|
| MECA0444-1 | <i>Mechanical design</i> - Jean-François DEBONGNIE | | 30 | 30 | - | 5 |
| PHYS0904-1 | <i>Physics of materials</i> - Jacqueline LECOMTE#BECKERS, Jean-Marie LIÉGEOIS | | 30 | 30 | - | 5 |
| ELEN0061-2 | <i>Introduction to Stochastic Processes</i> - Louis WEHENKEL | | 15 | 15 | - | 2 |
| DROI0724-1 | <i>law and engineering</i> - Pascale LECOCQ | | 30 | - | - | 3 |

Option Physics (Advanced Study)

| | <u>Prerequisite</u> | "Option Physique" | | | | |
|------------|-----------------------------------------------------------------------|-------------------|----|----|---|---|
| MECA0446-1 | <i>Continuum Mechanics</i> - Jean-Philippe PONTHOT | | 30 | 30 | - | 5 |
| ELEN0061-2 | <i>Introduction to Stochastic Processes</i> - Louis WEHENKEL | | 15 | 15 | - | 2 |
| DROI0724-1 | <i>law and engineering</i> - Pascale LECOCQ | | 30 | - | - | 3 |
| PHYS0055-1 | <i>Introduction to Condensed Matter Physics</i> - Jean-Pierre GASPARD | | 30 | 30 | - | 5 |

Option Electricity and Electronics (Advanced Study)

| | <u>Prerequisite</u> | "Option Electricité et électronique" | | | | |
|------------|--------------------------------------------------------------|--------------------------------------|----|----|---|---|
| ELEN0070-1 | <i>Signal Processing</i> - Jacques VERLY | | 30 | 30 | - | 5 |
| ELEN0076-1 | <i>Electromagnetism</i> - Benoît VANDERHEYDEN | | 30 | 30 | - | 5 |
| ELEN0061-2 | <i>Introduction to Stochastic Processes</i> - Louis WEHENKEL | | 15 | 15 | - | 2 |
| DROI0724-1 | <i>law and engineering</i> - Pascale LECOCQ | | 30 | - | - | 3 |

Option Computing (Advanced Study)

| | <u>Prerequisite</u> | "Option Informatique" | | | | |
|------------|------------------------------------------------------------------------------------------------|-----------------------|----|----|---|---|
| INFO0054-1 | <i>Functional programming</i> - Pascal GRIBOMONT | | 30 | 30 | - | 5 |
| ELEN0008-1 | <i>Principles of analog and digital telecommunications systems</i> - Marc VAN DROOGENBROECK | | 30 | 30 | - | 5 |
| ELEN0061-2 | <i>Introduction to Stochastic Processes</i> - Louis WEHENKEL | | 15 | 15 | - | 2 |
| DROI0724-1 | <i>law and engineering</i> - Pascale LECOCQ | | 30 | - | - | 3 |

Option Building (Advanced Study)

| | <u>Prerequisite</u> | "Option Constructions" | | | | |
|------------|----------------------------------------------------------------------------------------|------------------------|----|----|---|---|
| GCIV0099-1 | <i>Steel and concrete constructions II</i> - Jean-Claude DOTREPPE, Jean-Pierre JASPART | | 30 | 30 | - | 5 |
| GCIV0608-1 | <i>Integrated building projet</i> - Serge CESCOTTO, COLLÉGIALITÉ, Jean-Marc FRANSSSEN | | - | 60 | - | 4 |
| DROI0724-1 | <i>law and engineering</i> - Pascale LECOCQ | | 30 | - | - | 3 |
| GCIV0044-1 | <i>Land Transport Infrastructure Gauging</i> - Albert BOLLE | | 20 | 10 | - | 3 |

Option Advanced Studies in Geological Engineering

| | <u>Prerequisite</u> | "Option Génie géologique" | | | | |
|------------|-----------------------------------------------------------------------|---------------------------|----|----|-----|---|
| GCIV0603-1 | <i>Geotechnics</i> - Robert CHARLIER | | 30 | 30 | - | 5 |
| META0431-2 | <i>Mineral processing (processes)</i> - Stoyan GAYDARDZHIEV - [1d FW] | | 30 | 30 | [+] | 5 |
| BIOL0212-1 | <i>Introduction to environmental microbiology</i> - Monique CARNOL | | 30 | - | - | 2 |
| DROI0724-1 | <i>law and engineering</i> - Pascale LECOCQ | | 30 | - | - | 3 |

Option Advanced Biomedical Science

| | <u>Prerequisite</u> | "Option Génie biomédical" |
|--|---------------------|---------------------------|
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| | | | | | |
|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|---|---|
| ELEN0061-2 | <i>Introduction to Stochastic Processes</i> - Louis WEHENKEL | 15 | 15 | - | 2 |
| DROI0724-1 | <i>law and engineering</i> - Pascale LECOCQ | 30 | - | - | 3 |
| [...] | Two supplementary courses to be chosen among courses of the Bachelor's degree listed as optional courses for the first year of the Master's degree in Biomedical civil Engineering. These choices must meet with the approval of the President of the jury. | | | | |

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