

Two-year master program

First Year

Compulsory courses

GBIO0009-1	<i>Bio-informatics</i> - Kristel VAN STEEN	30	30	-	5
GBIO0010-1	<i>Bioinstrumentation</i> - Jacques DESTINÉ	30	30	-	5
GBIO0012-1	<i>Biomechanics</i> - Serge CESCOTTO	30	30	-	5
GBIO0008-1	<i>Medical imaging</i> - Christophe PHILLIPS	30	30	-	5
GBIO0011-1	<i>Biological systems modeling</i> - Pierre DAUBY, Rodolphe SEPULCHRE	30	30	-	5
GBIO0013-1	<i>Transport phenomena in biology</i> - Dominique TOYE	30	30	-	5

Non specific technical training - optional courses

With the agreement of the President of the jury students choose courses for 30 credits in the list below. The choose courses must secure the prerequisites for optional courses in the seconde year.

Optional courses for the first year in the Master's degree

MATH0461-1	<i>Intorduction to optimization</i> - Quentin LOUVEAUX	30	30	-	5
SYST0003-1	<i>Linear control systems</i> - Damien ERNST, Rodolphe SEPULCHRE	30	30	-	5
ELEN0060-1	<i>Information and Coding Theory</i> - Louis WEHENKEL	30	30	-	5
ELEN0074-1	<i>Sensors, microsensors and instrumentation</i> - Philippe VANDERBEMDEN	30	30	-	5
INFO0051-1	<i>Artificial Intelligence Logics</i> - Pascal GRIBOMONT	30	30	-	5
INFO0004-1	<i>Programming Language Internals</i> - Justus PIATER - Suppl : Guy LEDUC	30	30	-	5
MECA0036-1	<i>Finite Element Method</i> - Jean-Philippe PONTHOT	30	30	-	5
PHYS0961-1	<i>Irreversibility, instabilities and chaos</i> - Pierre DAUBY	30	30	-	5
PHYS0069-1	<i>Introduction to statistical physics</i> - Stéphane DORBOLO	30	30	-	5
ELEN0004-1	<i>The physics of semiconductor devices</i> - Benoît VANDERHEYDEN	30	30	-	5
INFO0009-1	<i>Introduction to Data Bases</i> - Pierre WOLPER	30	30	-	5
ELEN0037-1	<i>Microelectronics. Analysis and CAD of integrated circuits</i> - Jacques DESTINÉ	30	30	-	5

Optional course among those in the second year of the Bachelor's degree

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 computer

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

Option Mechanical

MECA0012-5	<i>Mechanics of materials (english)</i> - Serge CESCOTTO	30	30	-	5
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Option physics

MECA0445-1	<i>Transfers of heat and matter</i> - Michel HOGGE	30	30	-	5
PHYS0057-1	<i>Wave optics and wave mechanics</i> - Laurent DREESEN	30	30	-	5

Optional course among those in the third year of the Bachelor's degree

Option: Electricity and Electronics

ELEC0052-1	<i>Analysis and Design of Electrical Measuring Systems</i> - Philippe VANDERBEMDEN	30	30	-	5
ELEN0040-1	<i>Digital Electronics</i> - Jacques DESTINÉ	30	30	-	5

Option Advanced Electricity and Electronics

ELEN0070-1	<i>Signal Processing</i> - Jacques VERLY	30	30	-	5
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Option physics

MECA0025-1	<i>Fluid Mechanics</i> - Jean-André ESSERS	30	30	-	5
ELEN0076-1	<i>Electromagnetism</i> - Benoît VANDERHEYDEN	30	30	-	5

Option Chemistry and Material Sciences

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

Advanced Mechanical

PHYS0904-1	<i>Physics of materials</i> - Jacqueline LECOMTE#BECKERS, Jean-Marie LIÉGEOIS	30	30	-	5
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option computer

INFO0064-1	<i>Embedded Systems</i> - Bernard BOIGELOT	30	30	-	5
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Advanced Computer

INFO0054-1 *Functional programming* - Pascal GRIBOMONT 30 30 - 5

Notice : Students who have, in their BAC studies, already taken one or more option courses found in this list must not take them again.

Second year

Compulsory courses

ATFE0016-1 *Final Work (including an introduction to methodology and research)* - COLLÉGIALITÉ - - - 25

Optional courses

[...] A general course to be chosen from the University's programme of courses (with the agreement of the cycle's President of the Jury)

Research Focus

Optional courses

Choose courses totalling 30 credits from the list below. The choice of courses not taken must be approved by the cycle's Jury President.

Imagery and bioinstrumentation

MATH0049-1	<i>Morphological Characterization of Unordered Systems</i> - Silvia BLACHER	30	30	-	5
ELEN0016-1	<i>Digital Image Processing</i> - Marc VAN DROOGENBROECK	30	30	-	5
ELEN0071-1	<i>Digital Signal Processing</i> - Jacques VERLY	30	30	-	5
ELEN0072-1	<i>Statistical Signal Processing</i> - Jacques VERLY	30	30	-	5
ELEN0035-1	<i>CAD in (Analogue and Digital) On-Demand Microelectronics</i> - Jacques DESTINÉ	30	30	-	5
ELEN0038-1	<i>Microsystems</i> - Jacques DESTINÉ	30	30	-	5
INFO0013-1	(pas organisé en 2008-2009) <i>Computer vision (english)</i> - Justus PIATER	30	30	-	5
ELEN0069-1	<i>Nanoelectronics / Optoelectronics</i> - Benoît VANDERHEYDEN	30	30	-	5
ELEC0017-1	<i>Indirect Effects of Electromagnetic Fields</i> - Véronique BEAUVOIS, Jean-Louis LILIEN	30	30	-	5
ELEC0041-1	<i>Modeling and design of electromagnetic systems</i> - Patrick DULAR, Christophe GEUZAINÉ	30	30	-	5
ELEC0054-1	<i>Application of Electrical Measuring Systems</i> - Philippe VANDERBEMDEN	30	30	-	5
ELEN0019-1	<i>Treatment of the audio signals: principles and experiments</i> - Jean-Jacques EMBRECHTS	30	30	-	5

Bioinformatics and Modeling

ELEN0062-1	<i>Applied Inductive Learning</i> - Pierre GEURTS, Louis WEHENKEL	30	30	-	5
SYST0017-1	<i>Non linear systems</i> - Rodolphe SEPULCHRE	30	30	-	5
GBIO0015-1	<i>A tour in genetic epidemiology</i> - Kristel VAN STEEN	15	15	-	3
GBIO0016-1	<i>Introduction to systems biology</i> - N..., Rodolphe SEPULCHRE	30	30	-	5
BIOC0718-2	<i>Structure-function of biomolecules</i> - André MATAGNE, N...	15	25	-	4
GENE0436-1	<i>Statistic Genetic</i> - Michel GEORGES	10	10	-	2
GBIO0017-1	<i>Identification of biological processes and networks</i> - Dominique TOYE	10	10	-	2
CHIM0625-1	<i>Molecular mechanics and molecular dynamics</i> - Dominique DEHARENG	10	10	-	2
GENE0434-1	<i>Experimental genomic techniques</i> - Michel GEORGES	10	10	-	2
GBIO0007-1	<i>Gene sequencing and protein analysis: part a</i> - Bernard JORIS	10	10	-	2

Biomechanics

PROT0430-2	<i>Biomedical robotics and active prostheses</i> - Olivier BRULS	30	30	-	5
GBIO0014-2	<i>Network hemodynamics with deformable walls</i> - Michel PIROTON	15	15	-	3
MECA0058-1	<i>Fracture mechanics, damage and fatigue</i> - Ludovic NOELS	30	30	-	5
MECA0097-1	<i>Digital Methods in Fluid Dynamics</i> - Jean-André ESSERS	15	15	-	3
MECA0446-1	<i>Continuum Mechanics</i> - Jean-Philippe PONTHOT	30	30	-	5
MECA0464-1	<i>Large deformation of solids</i> - Jean-Philippe PONTHOT	30	30	-	5

Chemistry and Material Sciences

BIOC0430-1	<i>Interaction of living material</i> - Christian GRANDFILS	25	-	-	3
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CHIM0072-1	<i>Interface Physical Chemistry</i> - José MARIEN	15	15	-	3
CHIM0038-1	<i>The physics of polymer materials, including plasturgy</i> - Jean-Marie LIÉGEOIS	18	24	-	4
CHIM0667-2	<i>Transport phenomena in complex media (Transport in membranes)</i> - Dominique TOYE	15	15	-	3
MATH0049-1	<i>Morphological Characterization of Unordered Systems</i> - Silvia BLACHER	30	30	-	5
CHIM0069-1	<i>Porous Material Physical Chemistry</i> - Jean-Paul PIRARD	15	-	-	2
META0430-1	<i>Metal-Ceramic Materials</i> - Adrien MAGNÉE	15	10	-	2
BIOL0114-3	<i>Electronic microscopies</i> - Philippe COMPÈRE	45	15	-	5
MECA0462-1	<i>MECA0462: materials selection</i> - Jacqueline LECOMTE#BECKERS	30	30	-	5
CHIM0668-1	<i>Stirring and mixing</i> - Dominique TOYE	15	15	-	3
CHIM0067-1	<i>Biochemical Reactors II</i> - Michel CRINE	15	-	-	2
MECA0473-1	<i>Metallic materials Engineering</i> - Jacqueline LECOMTE#BECKERS	30	30	-	5

Adjusted programme for student of the Bachelors in Civil Engineering who have not taken the "Biomedical Engineering" option

Students studying for the Bachelors in Civil Engineering who have not chosen the appropriate option:

- * must take all the so-called "prerequisite" courses hereafter, if they were not taken during the 1st cycle. These courses must be taken during the 1st year of the masters and some 1st-year compulsory courses must be rolled over to the 2nd year.
- * must subsequently reduce the number of courses they choose to take in the 2nd year of the masters. If all the "prerequisite" courses must be taken, it will be impossible for them to choose which courses they take.

The adapted programme for these students must first gain be approved by the Jury.

Compulsory courses

GBIO0001-1	<i>Introduction to Biomedical Engineering</i> - Kristel VAN STEEN	30	30	-	5
BIOC0002-1	<i>Biochemistry</i> - Paulette CHARLIER	30	30	-	5
GBIO0002-1	<i>Genetics and molecular biology</i> - Michel GEORGES, Joseph MARTIAL	30	30	-	5
GBIO0005-1	<i>Introduction to neurosciences</i> - Shibeshih BELACHEW, Pierre MAQUET	30	30	-	5
GBIO0004-1	<i>Physiology of the systems</i> - Philippe KOLH	30	30	-	5
GBIO0003-1	<i>Molecular and cellular physiology</i> - Pierre ROBE	30	30	-	5