

Two-year master program

Access conditions to the Master (http://www.ulg.ac.be/cms/c_46337/master-en-ingenieur-civil-biomedical)

First Year

Compulsory courses

GBIO0009-1	<i>Bioinformatics</i> (english language) - Kristel VAN STEEN	30	30	-	5
GBIO0010-1	<i>Bioinstrumentation</i> - Jacques DESTINÉ	30	30	-	5
GBIO0012-2	<i>Biomechanics</i> (english language) - Liesbet GERIS - [1d FW]	30	30	[+]	5
GBIO0008-1	<i>Medical imaging</i> (english language) - 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

Optional courses

General technical training

Choose courses totalling 15 ECTS out of the following :

SYST0003-1	<i>Linear control systems</i> (english language) - Eric BULLINGER	30	30	-	5
MATH0461-1	<i>Introduction to numerical optimization</i> (english language) - Quentin LOUVEAUX	30	30	-	5
MATH0462-1	<i>Discrete optimization</i> - Quentin LOUVEAUX	30	30	-	5
ELEN0060-1	<i>Information and Coding Theory</i> - Louis WEHENKEL	30	30	-	5
MECA0036-1	<i>Finite Element Method</i> (english language) - JeanPhilippe PONTHOT	30	30	-	5
MECA0023-1	<i>Inelastic behavior of solids</i> - JeanPhilippe PONTHOT	30	30	-	5
PHYS0069-1	<i>Introduction to statistical physics</i> - Nicolas VANDEWALLE	30	30	-	5
INFO0942-1	<i>High performance scientific computing</i> (english language) - Christophe GEUZAINÉ	30	30	-	5
[...]	Through agreement with an academic mentor and the President of the Jury, one course from this list may be replaced by another from the Civil Engineering Masters.				

Specialized technical training

Choose courses totalling 15 ECTS out of the following :

B List

INFO0064-1	<i>Embedded Systems</i> - Bernard BOIGELOT	30	30	-	5
ELEN0074-1	<i>Sensors, microsensors and instrumentation</i> - Philippe VANDERBEMDEN	30	30	-	5
ELEN0037-1	<i>Microelectronics. Analysis and CAD of integrated circuits</i> - Jacques DESTINÉ	30	30	-	5
INFO0009-1	<i>Introduction to Data Bases</i> - Pierre WOLPER	30	30	-	5

B List

MECA0031-2	<i>Kinematics and Dynamics of Mechanisms</i> - Olivier BRULS	30	30	-	5
MECA0446-1	<i>Continuum Mechanics</i> - JeanPhilippe PONTHOT	30	30	-	5
CHIM0024-1	<i>Applied Physical Chemistry</i> - Cédric GOMMES, JeanPaul PIRARD	30	45	-	6
MECA0025-1	<i>Fluid Mechanics</i> - Eric DELHEZ	30	30	-	5
CHIM0675-1	<i>Macromolecular chemistry</i> - AnneSophie DUWEZ	20	20	-	3
[...]	Through agreement with an academic mentor and the President of the Jury, one course from this list may be replaced by another from the Civil Engineering Masters.				

Second year

Compulsory courses

ATFE0016-1	<i>Final Work (including an introduction to methodology and research)</i> - COLLÉGIALITÉ	-	-	-	25
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Optional courses

Choose one course from the ULg courses' programme or from the list below. In any case, this course must have the approval of the cycle's Jury President

LANG1957-1	<i>Dutch Engineering</i> (dutch language) - Claudine COLIN	60	-	-	5
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LANG1958-1	<i>German Engineering (german language) - Françoise CARL</i>	60	-	-	5
[...]	One course of the University				

Research Focus

Optional courses

Choose courses totaling 30 credits from the following list.

The choice of a course not included in this list must be approved by the President of the cycle's Jury.

Imagery and bioinstrumentation

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

Bioinformatics and Modeling

ELEN0062-1	<i>Applied Inductive Learning - Pierre GEURTS, Louis WEHENKEL</i>	30	30	-	5
SYST0017-1	<i>Non linear systems - Rodolphe SEPULCHRE</i>	30	30	-	5
GBIO0015-1	<i>A tour in genetic epidemiology (english language) - Kristel VAN STEEN</i>	15	15	-	3
BIOC0718-2	<i>Structure-function of biomolecules - Mireille DUMOULIN</i>	15	25	-	4
GENE0436-1	<i>Statistic Genetic - N...</i>	10	10	-	2
CHIM0625-1	<i>Molecular mechanics and molecular dynamics - Dominique DEHARENG</i>	10	10	-	2
GENE0434-1	<i>Experimental genomic techniques - N...</i>	10	10	-	2
GBIO0007-1	<i>Gene sequencing and protein analysis : part a - Bernard JORIS</i>	10	10	-	2
MATH0462-1	<i>Discrete optimization - Quentin LOUVEAUX</i>	30	30	-	5

Biomechanics

PROT0430-2	<i>Biomedical robotics and active prostheses - Olivier BRULS</i>	30	30	-	5
MECA0058-1	<i>Fracture mechanics, damage and fatigue (english language) - Ludovic NOELS</i>	30	30	-	5
MECA0097-1	<i>Digital Methods in Fluid Dynamics - Jean André ESSERS</i>	15	15	-	3
MECA0446-1	<i>Continuum Mechanics - JeanPhilippe PONTHOT</i>	30	30	-	5
MECA0464-1	<i>Large deformation of solids (english language) - JeanPhilippe PONTHOT</i>	30	30	-	5
MECA0008-1	<i>Microfluidics (english language) - Tristan GILET</i>	30	30	-	5

Chemistry and Material Sciences

CHIM0072-1	<i>Engineering of nanomaterials and divided materials - Benoît HEINRICHS, Stéphanie LAMBERT</i>	15	15	-	3
PHYS0038-1	<i>Physics of polymer materials, including plasturgy - N... - Suppl : Eric MARTIN</i>	20	20	-	4
CHIM0667-2	<i>Transport phenomena in complex media (Transport in membranes) - Dominique TOYE</i>	15	15	-	3
MATH0049-1	<i>Morphological Characterization of Unordered Systems - Silvia BLACHER</i>	30	30	-	5
CHIM0069-1	<i>Porous Material Physical Chemistry - JeanPaul PIRARD</i>	15	-	-	2
BIOL0114-3	<i>Electronic microscopies - Philippe COMPÈRE</i>	45	15	-	5
MECA0462-2	<i>Materials selection (english language) - Jacqueline LECOMTEBECKERS - [1d FW]</i>	30	30	[+]	5
CHIM0668-1	<i>Stirring and mixing - Dominique TOYE</i>	15	15	-	3
CHIM0067-1	<i>Biochemical Reactors II - Michel CRINE</i>	15	-	-	2
MECA0473-1	<i>Metallic materials Engineering - Jacqueline LECOMTEBECKERS</i>	30	30	-	5

Biomedical Engineering

GBIO0016-1	<i>Introduction to systems and synthetic biology (english language) - Eric BULLINGER, Bernard JORIS</i>	30	30	-	5
GBIO0017-1	<i>Identification of biological processes and networks - Dominique TOYE</i>	10	10	-	2
GBIO0018-1	<i>Introduction to tissue engineering (english language) - Liesbet GERIS</i>	30	30	-	5
BIOC0430-1	<i>Interaction of living material - Christian GRANDFILS</i>	25	-	-	3
GBIO0022-1	<i>Biomimetism (english language) - Liesbet GERIS, Tristan GILET</i>	30	30	-	5
GBIO0014-2	<i>Modeling of physiological systems and clinical applications - Thomas DESAIVE</i>	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>Biophysics</i> (english language) - Liesbet GERIS	30	30	-	5
BIOC0002-1	<i>Biochemistry</i> - Paulette CHARLIER	30	30	-	5
GBIO0002-1	<i>Genetics and molecular biology</i> - Michel GEORGES, N... - Suppl : Marc MULLER	30	30	-	5
GBIO0005-1	<i>Introduction to neurosciences</i> - Shibeshih BELACHEW, Pierre MAQUET - Suppl : Pierre LEPRINCE, Gilles VANDEWALLE	30	30	-	5
GBIO0020-1	<i>Physiology</i> - Philippe KOLH, Olivier PEULEN	30	30	-	10