Study programmes 2011-2012
Faculty of Applied Sciences
Master in Biomedical Engineering

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	*Bioinformatics* (english language) - Kristel VAN STEEN	30	30	-	**5**
GBIO0010-1	*Bioinstrumentation* - Jacques DESTINÉ	30	30	-	**5**
GBIO0012-2	*Biomechanics* (english language) - Liesbet GERIS - [1d FW]	30	30	[+]	**5**
GBIO0008-1	*Medical imaging* - Christophe PHILLIPS	30	30	-	**5**
GBIO0011-1	*Biological systems modeling* - Pierre DAUBY, Rodolphe SEPULCHRE	30	30	-	**5**
GBIO0013-1	*Transport phenomena in biology* - Dominique TOYE	30	30	-	**5**

Non specific technical training

[...] With the help of a supervisor of their choice and with the approval of the cycle's Jury President, students choose, from the courses' programme of the Faculty of Applied Sciences, courses not already followed totalling 30 ECTS. The courses must secure the prerequisites for optional courses in the second year.

Second year

Compulsory courses

ATFE0016-1	*Final Work (including an introduction to methodology and research)* - COLLÉGIALITÉ	-	-	-	**25**
[...]	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	*Dutch Engineering* (dutch language) - Claudine COLIN	60	-	-	**5**
LANG1958-1	*German Engineering* (german language) - Françoise CARL	60	-	-	**5**

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

Bioinformatics and Modeling

ELEN0062-1	*Applied Inductive Learning* - Pierre GEURTS, Louis WEHENKEL	30	30	-	**5**
SYST0017-1	*Non linear systems* - Rodolphe SEPULCHRE	30	30	-	**5**
GBIO0015-1	*A tour in genetic epidemiology* (english language) - Kristel VAN STEEN	15	15	-	**3**
GBIO0016-1	*Introduction to systems biology* (english language) - Eric BULLINGER, Rodolphe SEPULCHRE	30	30	-	**5**
BIOC0718-2	*Structure-function of biomolecules* - Mireille DUMOULIN	15	25	-	**4**

GENE0436-1	*Statistic Genetic* - Michel GEORGES	10	10	-	**2**
GBIO0017-1	*Identification of biological processes and networks* - Dominique TOYE	10	10	-	**2**
CHIM0625-1	*Molecular mechanics and molecular dynamics* - Dominique DEHARENG	10	10	-	**2**
GENE0434-1	*Experimental genomic techniques* - Michel GEORGES	10	10	-	**2**
GBIO0007-1	*Gene sequencing and protein analysis : part a* - Bernard JORIS	10	10	-	**2**
MATH0462-1	*Discrete optimization* - Quentin LOUVEAUX	30	30	-	**5**
GBIO0014-2	*Modeling of physiological systems and clinical applications* - Thomas DESAIVE	30	30	-	**5**
Biomechanics					
PROT0430-2	*Biomedical robotics and active prostheses* - Olivier BRULS	30	30	-	**5**
MECA0058-1	*Fracture mechanics, damage and fatigue* (english language) - Ludovic NOELS	30	30	-	**5**
MECA0097-1	*Digital Methods in Fluid Dynamics* - Jean-André ESSERS	15	15	-	**3**
MECA0446-1	*Continuum Mechanics* - Jean-Philippe PONTHOT	30	30	-	**5**
MECA0464-1	*Large deformation of solids* (english language) - Jean-Philippe PONTHOT	30	30	-	**5**
GBIO0018-1	*Introduction to tissue engineering* (english language) - Liesbet GERIS	30	30	-	**5**
Chemistry and Material Sciences					
BIOC0430-1	*Interaction of living material* - Christian GRANDFILS	25	-	-	**3**
CHIM0072-1	*Engineering of nanomaterials and divided materials* - Benoît HEINRICHS	15	15	-	**3**
PHYS0038-1	*Physics of polymer materials, including plasturgy* - N... - Suppl : Eric MARTIN	20	20	-	**4**
CHIM0667-2	*Transport phenomena in complex media (Transport in membranes)* - Dominique TOYE	15	15	-	**3**
MATH0049-1	*Morphological Characterization of Unordered Systems* - Silvia BLACHER	30	30	-	**5**
CHIM0069-1	*Porous Material Physical Chemistry* - Jean-Paul PIRARD	15	-	-	**2**
META0430-1	*Metal-Ceramic Materials* - Adrien MAGNÉE	15	10	-	**2**
BIOL0114-3	*Electronic microscopies* - Philippe COMPÈRE	45	15	-	**5**
MECA0462-2	*Materials selection* (english language) - Jacqueline LECOMTE#BECKERS - [1d FW]	30	30	[+]	**5**
CHIM0668-1	*Stirring and mixing* - Dominique TOYE	15	15	-	**3**
CHIM0067-1	*Biochemical Reactors II* - Michel CRINE	15	-	-	**2**
MECA0473-1	*Metallic materials Engineering* - Jacqueline LECOMTE#BECKERS	30	30	-	**5**
ASTG0024-1	*Placement* - COLLÉGIALITÉ	-	-	-	**10**

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	*Biophysics* (english language) - Liesbet GERIS	30	30	-	**5**
BIOC0002-1	*Biochemistry* - Paulette CHARLIER	30	30	-	**5**
GBIO0002-1	*Genetics and molecular biology* - Michel GEORGES - Suppl : Marc MULLER	30	30	-	**5**
GBIO0005-1	*Introduction to neurosciences* - Shibeshih BELACHEW, Pierre MAQUET	30	30	-	**5**
GBIO0004-1	*Physiology of the systems* - Philippe KOLH	30	30	-	**5**
GBIO0003-1	*Molecular and cellular physiology* - Olivier PEULEN	30	30	-	**5**