First Year

Compulsory Courses

		Or	Th	Pr	Au	Cr
GBIO0009-1	*Bioinformatics* (english language) - Kristel VAN STEEN	Q1	30	30	-	**5**
GBIO0029-1	*Bioelectronics* (english language) - Michael KRAFT		30	30	-	**5**
GBIO0012-2	*Biomechanics* (english language) - Liesbet GERIS, Davide RUFFONI - [1d FW]	Q1	30	30	[+]	**5**
GBIO0008-2	*Medical imaging* (english language) - Christophe PHILLIPS - [8h Labo., 1d FW]	Q2	33	12	[+]	**5**
GBIO0011-1	*Modeling of biological systems* - Pierre DAUBY, Liesbet GERIS	Q2	30	30	-	**5**
GBIO0013-1	*Transport phenomena in biology* - Dominique TOYE	Q1	30	30	-	**5**
GBIO0027-1	*Integrated project in biomedical engineering* (english language) - Liesbet GERIS, Davide RUFFONI	TA	30	90	-	**10**
	Notice : With the accord of the President of the jury, notably according to technical matter, the integrated project can be in line with a interdisciplinary project (for exemple Ingénieur de projets, Eurobot, Eco-Shell Marathon,...), done between the third year of the bachelor and the second year of the master.					
GEST3162-1	*Introduction to company management* (english language) - Michael GHILISSEN, François PICHAULT, Thierry PIRONET, Didier VAN CAILLIE	Q2	25	25	-	**5**

Optional courses

General technical formation

10 ECTS in the following list of courses

SYST0003-1	*Linear control systems* (english language) - Rodolphe SEPULCHRE - Suppl : Raphaël FONTENEAU	Q1	30	30	-	**5**
MATH0461-2	*Introduction to numerical optimization* (english language) - Quentin LOUVEAUX - [25h Proj.]	Q2	30	20	[+]	**5**
MATH0462-1	*Discrete optimization* (english language) - Quentin LOUVEAUX - [25h Proj.]	Q1	30	20	[+]	**5**
ELEN0060-2	*Information and coding theory* (english language) - Louis WEHENKEL - [30h Proj.]	Q2	30	15	[+]	**5**
MECA0036-2	*Finite Element Method* (english language) - JeanPhilippe PONTHOT - [40h Proj.]	Q2	30	30	[+]	**5**
MECA0464-1	*Large deformation of solids* (english language) - JeanPhilippe PONTHOT	Q1	30	30	-	**5**
PHYS0069-1	*Introduction to statistical physics* - Nicolas VANDEWALLE	Q2	30	30	-	**5**
INFO0939-1	*High performance scientific computing* (english language) - Christophe GEUZAINE - [20h Proj.]	Q1	30	15	[+]	**5**
[...]	With the accord of the academic mentor and the president of the jury, a course in this list can be replaced by course (with technical character) borrowed from the bachelor program of engineering					

Specialised technical formation

5 ECTS to choose in either list A or B

List A

INFO0064-3	*Embedded systems* (english language) - Bernard BOIGELOT - [60h Proj.]	Q1	30	30	[+]	**5**
ELEN0074-1	*Sensors, microsensors and instrumentation* (english language) - Philippe VANDERBEMDEN	Q2	30	30	-	**5**
ELEN0037-1	*Microelectronics and IC design* (english language) - Michael KRAFT		30	30	-	**5**
INFO0009-1	*Database (general organisation)* - Pierre WOLPER - [25h Proj.]	Q2	30	25	[+]	**5**

List B

MECA0031-2	*Kinematics and dynamics of mechanisms* (english language) - Olivier BRULS	Q2	30	30	-	**5**
MECA0446-2	*Continuum Mechanics* - JeanPhilippe PONTHOT - [50h Proj.]	Q2	30	30	[+]	**5**
CHIM0698-1	*Physical chemistry of interfaces* - Cédric GOMMES	Q1	15	15	-	**3**
MECA0025-3	*Fluid Mechanics* - Eric DELHEZ - [30h Proj.]	Q2	30	30	[+]	**5**
CHIM0675-1	*Macromolecular chemistry* - AnneSophie DUWEZ	Q1	20	20	-	**3**
[...]	With the accord of the academic mentor and the president of the jury, a course in this list can be replaced by a other course from the master program of engineering.					

Compulsory courses

GBIO0001-1	*Biophysics* (english language) - Liesbet GERIS	Q2	30	30	-	**5**
BIOC0002-1	*Biochemistry* - Paulette CHARLIER	Q2	30	30	-	**5**
GBIO0002-1	*Genetics and bioinformatics* - Franck DEQUIEDT, Michel GEORGES, Kristel VAN STEEN	Q1	30	30	-	**5**
GBIO0005-1	*Introduction to cognitive neurosciences* - Pierre LEPRINCE, Gilles VANDEWALLE	Q2	30	30	-	**5**
GBIO0020-1	*Physiology* - Philippe KOLH, Olivier PEULEN	Q1	30	30	-	**10**
GBIO0021-1	*Laboratory project* - Thomas DESAIVE, Liesbet GERIS	Q2	-	60	-	**5**

Second Year

Compulsory courses

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

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	*Dutch for Engeneering Students* (dutch language) - Claudine COLIN	TA	60	-	-	**5**
LANG1958-1	*German for Engineering Students* (german language) - Françoise CARL	TA	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	*Morphological Characterization of Unordered Systems* - Silvia BLACHER		30	30	-	**5**
ELEN0016-2	*Digital image and video processing* (english language) - Marc VAN DROOGENBROECK - [20h Proj.]	Q1	30	10	[+]	**5**
ELEN0071-1	*Digital Signal Processing* (english language) - Jacques VERLY - [40h Proj.]		45	15	[+]	**5**
ELEN0072-1	*Statistical signal processing* (english language) - Jacques VERLY - [40h Proj.]		45	15	[+]	**5**
ELEN0038-1	*Integrated electronics of microsystems* (english language) - Michael KRAFT		30	30	-	**5**
ELEN0069-1	*Nanoelectronics / Optoelectronics* - Benoît VANDERHEYDEN	Q2	30	30	-	**5**
ELEC0017-1	*Electromagnetic compatibility* - Véronique BEAUVOIS, Christophe GEUZAINE	Q1	30	30	-	**5**
ELEC0041-1	*Modelling and design of electromagnetic systems* (english language) - Patrick DULAR, Christophe GEUZAINE	TA	30	30	-	**5**
ELEC0054-1	*Application of Electrical Measuring Systems* - Philippe VANDERBEMDEN	Q1	30	30	-	**5**
ELEN0019-2	*Audio signal processing : principles and experiments* (english language) - JeanJacques EMBRECHTS - [24h Labo., 30h Proj.]	Q1	5	-	[+]	**5**

Bioinformatique

ELEN0062-1	*Applied Inductive Learning* (english language) - Pierre GEURTS, Louis WEHENKEL - [40h Proj.]	Q1	30	5	[+]	**5**
GBIO0015-1	*A tour in genetic epidemiology* (english language) - Kristel VAN STEEN	Q2	15	15	-	**3**
BIOC0718-2	*Structure-function of biomolecules* - Mireille DUMOULIN		15	25	-	**4**
GENE0436-1	*Statistic Genetic* - N...		10	10	-	**2**
GENE0434-1	*Experimental genomic techniques* - N...		10	10	-	**2**
GBIO0007-1	*Gene sequencing and protein analysis : part a* - Bernard JORIS	Q1	10	10	-	**2**
MATH0462-1	*Discrete optimization* (english language) - Quentin LOUVEAUX - [25h Proj.]	Q1	30	20	[+]	**5**

Biomechanics

PROT0430-3	*Biomedical robotics and active prostheses* - Olivier BRULS	Q1	15	10	-	**2**
MECA0058-1	*Fracture mechanics, damage and fatigue* (english language) - Ludovic NOELS	Q1	30	30	-	**5**
MECA0446-2	*Continuum Mechanics* - JeanPhilippe PONTHOT - [50h Proj.]	Q2	30	30	[+]	**5**
MECA0464-1	*Large deformation of solids* (english language) - JeanPhilippe PONTHOT	Q1	30	30	-	**5**
MECA0008-1	*Microfluidics* (english language) - Tristan GILET	Q1	30	30	-	**5**

MECA0010-1	*Stochastic modelling* (english language) - Maarten ARNST	Q2	30	30	-	**5**
MECA0516-1	*Mechanical properties of biologics and bioinspired materials* (english language) - Davide RUFFONI	Q1	15	15	-	**3**
Chemistry and Material Sciences						
CHIM0072-1	*Engineering of nanomaterials and divided materials* - Benoît HEINRICHS, Stéphanie LAMBERT	Q1	15	15	-	**3**
PHYS0038-1	*Physics of polymer materials, including plasturgy* - Klaus KECK, N...		20	20	-	**4**
MATH0049-1	*Morphological Characterization of Unordered Systems* - Silvia BLACHER		30	30	-	**5**
BIOL0114-3	*Electronic microscopies* - Philippe COMPÈRE	Q2	45	15	-	**5**
MECA0462-2	*Materials selection* (english language) - Jacqueline LECOMTEBECKERS, Davide RUFFONI - [1d FW]	Q1	30	30	[+]	**5**
CHIM0668-1	*Stirring and mixing* - Dominique TOYE	Q1	15	15	-	**3**
BIOC9241-1	*Microbial technologies* - N...		15	5	-	**2**
MECA0473-1	*Metallic materials Engineering* - Jacqueline LECOMTEBECKERS	Q1	30	30	-	**5**
Génie biomédical et modélisation						
CHIM0625-1	*Molecular mechanics and molecular dynamics* - Eric SAUVAGE	Q1	10	10	-	**2**
SYST0017-1	*Non linear systems* - Rodolphe SEPULCHRE - Suppl : Alexandre MAUROY	Q1	30	30	-	**5**
GBIO0017-1	*Parametric identification of biological models* - Dominique TOYE	Q1	10	10	-	**2**
GBIO0018-2	*Introduction to tissue engineering* (english language) - Liesbet GERIS	Q2	20	20	-	**3**
BIOC0430-1	*Interaction of living material* - Christian GRANDFILS	Q1	25	-	-	**3**
GBIO0022-1	*Biomimetism* (english language) - Liesbet GERIS, Tristan GILET, Eric PARMENTIER, Davide RUFFONI	TA	30	30	-	**5**
GBIO0014-2	*Modeling of physiological systems and clinical applications* - Thomas DESAIVE	Q1	30	30	-	**5**
ASTG0024-1	*Placement* - COLLÉGIALITÉ		-	-	-	**8**
ASTG9007-1	*Observation placement* - Liesbet GERIS		-	-	-	**3**

Compulsory course

ATFE0016-1	*Master thesis (including introduction to research methodology)*		-	-	-	**25**

Optional courses

A course chosen in the course program of the university or in the list below :

The choice must be approuved by the President of the cycle's jury.

LANG1957-1	*Dutch for Engeneering Students* (dutch language) - Claudine COLIN	TA	60	-	-	**5**
LANG1958-1	*German for Engineering Students* (german language) - Françoise CARL	TA	60	-	-	**5**
[...]	one course of the university					

Research focus

Optional courses

Choose course for a total of 30 ECTS in the following list.

Choosing a course not in this list must receive approval by the president of the jury.

Imaging and bioinstrumentation						
MATH0049-1	*Morphological Characterization of Unordered Systems* - Silvia BLACHER		30	30	-	**5**
ELEN0016-2	*Digital image and video processing* (english language) - Marc VAN DROOGENBROECK - [20h Proj.]	Q1	30	10	[+]	**5**
ELEN0071-1	*Digital Signal Processing* (english language) - Jacques VERLY - [40h Proj.]		45	15	[+]	**5**
ELEN0072-1	*Statistical signal processing* (english language) - Jacques VERLY - [40h Proj.]		45	15	[+]	**5**
ELEN0038-1	*Integrated electronics of microsystems* (english language) - Michael KRAFT		30	30	-	**5**
ELEN0069-1	*Nanoelectronics / Optoelectronics* - Benoît VANDERHEYDEN	Q2	30	30	-	**5**
ELEC0017-1	*Electromagnetic compatibility* - Véronique BEAUVOIS, Christophe GEUZAINE	Q1	30	30	-	**5**
ELEC0041-1	*Modelling and design of electromagnetic systems* (english language) - Patrick DULAR, Christophe GEUZAINE	TA	30	30	-	**5**
ELEC0054-1	*Application of Electrical Measuring Systems* - Philippe VANDERBEMDEN	Q1	30	30	-	**5**
ELEN0019-2	*Audio signal processing : principles and experiments* (english language) - JeanJacques EMBRECHTS - [24h Labo., 30h Proj.]	Q1	5	-	[+]	**5**

Bioinformatics						
ELEN0062-1	*Applied Inductive Learning* (english language) - Pierre GEURTS, Louis WEHENKEL - [40h Proj.]	Q1	30	5	[+]	**5**
GBIO0015-1	*A tour in genetic epidemiology* (english language) - Kristel VAN STEEN	Q2	15	15	-	**3**
BIOC0718-2	*Structure-function of biomolecules* - Mireille DUMOULIN		15	25	-	**4**
GENE0436-1	*Statistic Genetic* - N...		10	10	-	**2**
GENE0434-1	*Experimental genomic techniques* - N...		10	10	-	**2**
GBIO0007-1	*Gene sequencing and protein analysis : part a* - Bernard JORIS	Q1	10	10	-	**2**
MATH0462-1	*Discrete optimization* (english language) - Quentin LOUVEAUX - [25h Proj.]	Q1	30	20	[+]	**5**
Biomechanics						
PROT0430-3	*Biomedical robotics and active prostheses* - Olivier BRULS	Q1	15	10	-	**2**
MECA0058-1	*Fracture mechanics, damage and fatigue* (english language) - Ludovic NOELS	Q1	30	30	-	**5**
MECA0446-2	*Continuum Mechanics* - JeanPhilippe PONTHOT - [50h Proj.]	Q2	30	30	[+]	**5**
MECA0464-1	*Large deformation of solids* (english language) - JeanPhilippe PONTHOT	Q1	30	30	-	**5**
MECA0008-1	*Microfluidics* (english language) - Tristan GILET	Q1	30	30	-	**5**
MECA0010-1	*Stochastic modelling* (english language) - Maarten ARNST	Q2	30	30	-	**5**
MECA0516-1	*Mechanical properties of biologics and bioinspired materials* (english language) - Davide RUFFONI	Q1	15	15	-	**3**
Chemistry and material sciences						
CHIM0072-1	*Engineering of nanomaterials and divided materials* - Benoît HEINRICHS, Stéphanie LAMBERT	Q1	15	15	-	**3**
PHYS0038-1	*Physics of polymer materials, including plasturgy* - Klaus KECK, N...		20	20	-	**4**
MATH0049-1	*Morphological Characterization of Unordered Systems* - Silvia BLACHER		30	30	-	**5**
BIOL0114-3	*Electronic microscopies* - Philippe COMPÈRE	Q2	45	15	-	**5**
MECA0462-2	*Materials selection* (english language) - Jacqueline LECOMTEBECKERS, Davide RUFFONI - [1d FW]	Q1	30	30	[+]	**5**
CHIM0668-1	*Stirring and mixing* - Dominique TOYE	Q1	15	15	-	**3**
BIOC9241-1	*Microbial technologies* - N...		15	5	-	**2**
MECA0473-1	*Metallic materials Engineering* - Jacqueline LECOMTEBECKERS	Q1	30	30	-	**5**
Biomedical engineering and modeling						
CHIM0625-1	*Molecular mechanics and molecular dynamics* - Eric SAUVAGE	Q1	10	10	-	**2**
SYST0017-1	*Non linear systems* - Rodolphe SEPULCHRE - Suppl : Alexandre MAUROY	Q1	30	30	-	**5**
GBIO0017-1	*Parametric identification of biological models* - Dominique TOYE	Q1	10	10	-	**2**
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GBIO0022-1	*Biomimetism* (english language) - Liesbet GERIS, Tristan GILET, Eric PARMENTIER, Davide RUFFONI	TA	30	30	-	**5**
GBIO0014-2	*Modeling of physiological systems and clinical applications* - Thomas DESAIVE	Q1	30	30	-	**5**
ASTG0024-1	*Stage d'immersion* - Liesbet GERIS		-	-	-	**8**
ASTG9007-1	*Observation placement* - Liesbet GERIS		-	-	-	**3**