Cycle view of the study programme

		Bl	Or	Th	Pr	Au	Cr
Compulsory Courses (B1 : 60Cr, B2 : 30Cr)							
Applied physics							
CHIM0202-3	*Physical Chemistry* - Bernard LEYH	B1	Q1	30	10	-	**4**
ELEN0004-1	*Semiconductor devices* (english language) - Benoît VANDERHEYDEN	B1	Q1	30	30	-	**5**
MECA0023-1	*Advanced solid mechanics* (english language) - JeanPhilippe PONTHOT - [20h Proj.]	B1	Q1	30	30	[+]	**5**
CHIM0698-1	*Physical Chemistry of Interfaces* - Cédric GOMMES	B1	Q2	20	10	-	**3**
Experimental methods							
MECA0008-1	*Microfluidics* (english language) - Tristan GILET - [16h Labo., 14h Proj.]	B1	Q1	22	8	[+]	**5**
ELEN0074-1	*Sensors, microsensors and instrumentation* (english language) - Philippe VANDERBEMDEN - [20h Labo.]	B1	Q2	30	-	[+]	**5**
Modelling and design methods							
MECA0036-2	*Finite Element Method* (english language) - JeanPhilippe PONTHOT - [40h Proj.]	B1	Q2	30	30	[+]	**5**
MATH0024-1	*Modelling with partial differential equations* - Maarten ARNST - [25h Proj.]	B1	Q1	30	20	[+]	**4**
INFO0939-1	*High performance scientific computing* (english language) - Christophe GEUZAINE - [20h Proj.]	B1	Q1	30	15	[+]	**4**
MATH2015-1	*Perturbation methods* (english language) - Vincent DENOËL	B1	Q2	15	15	-	**3**
SYST0003-1	*Linear control systems* (english language) - Guillaume DRION - [6h Labo.]	B1	Q1	30	30	[+]	**5**
Projects							
MATH0471-3	*Multiphysics integrated computational project* (english language) - Romain BOMAN, Christophe GEUZAINE - [70h Proj.] **Corequisite :** MATH0024-1 - Modelling with partial differential equations INFO0939-1 - High performance scientific computing MATH2015-1 - Perturbation methods	B1	TA	20	-	[+]	**8**
APRI0006-1	*Personal experimental project* (english language) - Tristan GILET - [60h Proj.]	B1	TA	-	-	[+]	**4**
ATFE9007-1	*Final thesis (included an introduction to research methodology)*	B2	TA	-	-	-	**25**
GEST3162-1	*Principles of management* (english language) - Michael GHILISSEN, François PICHAULT, Thierry PIRONET, Didier VAN CAILLIE	B2	Q1	25	25	-	**5**
Optional courses (B2 : 30Cr)							
Single focus (B2 : 30Cr)							
Research focus (B2 : 30Cr)							
Choose one of the three following options: (B2 : 15Cr)							
Fluids (B2 : 15Cr)							
PHYS0090-1	*Complex fluids and non-Newtonian flows* (english language) - Vincent TERRAPON	B2	Q1	30	30	-	**5**
PHYS0961-1	*Irreversibility, instabilities and chaos* - Pierre DAUBY	B2	Q1	30	30	-	**5**
OCEA0071-1	*Geophysical fluid dynamics - part 1* (english language) - JeanMarie BECKERS	B2	Q2	30	15	-	**5**

Solids (B2 : 15Cr)

MECA0464-1	*Large deformation of solids* (english language) - JeanPhilippe PONTHOT - [60h Proj.]	B2	Q1	30	30	[+]	**5**
MECA0058-1	*Fracture mechanics, damage and fatigue* (english language) - Ludovic NOELS - [75h Proj.]	B2	Q1	30	10	[+]	**5**
MECA0516-1	*Mechanical properties of biological and bioinspired materials* (english language) - Davide RUFFONI - [3h Labo.]	B2	Q1	15	12	[+]	**5**

Materials and electronics (B2 : 15Cr)

ELEN0047-1	*Superconductivity* - Philippe VANDERBEMDEN - [15h Labo.]	B2	Q1	30	-	[+]	**5**
ELEN0446-1	(pas organisé en 2015-2016) *Physics of electrical insulating materials* (english language) - [15h Labo.]	B2	Q1	15	-	[+]	**3**
CHIM0664-1	*Electrochemical energy conversion and storage* (english language) - Nathalie JOB	B2	Q1	15	15	-	**3**
ELEN0069-1	*Nanoelectronics / Optoelectronics* (english language) - Benoît VANDERHEYDEN - [40h Proj.]	B2	Q2	30	-	[+]	**4**

Choose 15 credits among: (B2 : 15Cr)

[...] in an option, an internship, or in the list of optional courses below :

Notice : Must be independent of the master's thesis. Can be carried out in either a company or in a research center outside ULg.

[...] subject to the approval of the Cycle jury, up to 10 credits can be chosen in the ULg course programme

Optional courses

AERO0030-1	*Computational fluid dynamics* (english language) - Vincent TERRAPON - [10h Labo.]	B2	Q2	30	20	[+]	**5**
BIOL0114-4	*Electronic microscopies* - Philippe COMPÈRE	B2	Q2	15	-	-	**3**
CHIM0697-1	*Heterogeneous catalysis* (english language) - Nathalie JOB	B2	Q1	20	20	-	**4**
CHIM9231-1	*Characterization of Biomaterials* (english language) - Edwin DE PAUW, MarieClaire GILLET	B2	Q1	15	15	-	**3**
ELEC0041-1	*Modelling and design of electromagnetic systems* (english language) - Patrick DULAR, Christophe GEUZAINE	B2	Q2	30	30	-	**5**
ELEN0038-1	*Microsystems* (english language) - Michael KRAFT - [20h Labo., 40h Proj.]	B2	Q2	30	5	[+]	**5**
INFO2046-2	*Computational geometry* (english language) - Eric BÉCHET - [95h Proj.]	B2	Q1	25	-	[+]	**5**
MECA0027-1	*Structural and multidisciplinary optimization* - Pierre DUYSINX, Patricia TOSSINGS - [18h Proj.]	B2	Q1	30	12	[+]	**5**
MECA0029-1	*Theory of vibration* (english language) - JeanClaude GOLINVAL - [30h Proj.]	B2	Q1	30	30	[+]	**5**
MECA0010-1	*Scholastic modelling* (english language) - Maarten ARNST - [28h Proj.]	B2	Q2	16	16	[+]	**5**
MECA0470-1	*New methodsin computational mechanics* (english language) - Maarten ARNST, Eric BÉCHET, Ludovic NOELS - [40h Proj.]	B2	Q2	20	-	[+]	**5**
MECA0518-1	(pas organisé en 2015-2016) *Fluvial and non stationary hydrodynamics*	B2	Q1	30	30	-	**5**
PHYS0038-1	*Introduction into polymer physics including plasturgy* - Klaus KECK	B2	Q1	20	20	-	**4**

Intership

ASTG0025-1	*Internship or placement in a research centre* - Tristan GILET	B2	TA	-	-	-	**10**

Programme transitoire à destination des étudiants ayant réussi leur master 1 de

"Master en ingénieur civil physicien, à finalité approfondie" en 2014-2015

Optional courses (B1 : 30Cr)

Single focus (B1 : 30Cr)

Research Focus (B1 : 30Cr)

Choose one module from : (B1 : 30Cr)

Electronic physics (B1 : 30Cr)

[...] Choose courses totalling 20 ECTS from the following :

ELEN0004-1	*Semiconductor devices* (english language) - Benoît VANDERHEYDEN	B1	Q1	30	30	-	**5**
ELEN0047-1	*Superconductivity* - Philippe VANDERBEMDEN - [15h Labo.]	B1	Q1	30	-	[+]	**5**
ELEN0038-1	*Microsystems* (english language) - Michael KRAFT - [20h Labo., 40h Proj.]	B1	Q2	30	5	[+]	**5**
PHYS0046-2	*Quantum physics and applications to Condensed Matter* - Philippe GHOSEZ, Matthieu VERSTRAETE	B1	Q1	30	30	-	**5**
ELEN0069-1	*Nanoelectronics / Optoelectronics* (english language) - Benoît VANDERHEYDEN - [40h Proj.]	B1	Q2	30	-	[+]	**5**
PHYS0236-2	*Lasers in physics and applications* - Serge HABRAKEN	B1	Q2	30	30	-	**5**
PHYS3003-1	*Functional Materials : theory and modeling* (english language) - Philippe GHOSEZ	B1	Q1	20	10	-	**3**
PHYS3004-1	*Nanomaterials : theory and modeling* (english language) - JeanYves RATY	B1	Q1	20	10	-	**3**

[...] Choose one placement or courses totaling 10 ECTS from the following lists : "Physical Electronics", "Fluid Mechanics", "Solid Mechanics", "Space Science" and "Mathematical, digital and multiphysical methods".

ELEN0004-1	*Semiconductor devices* (english language) - Benoît VANDERHEYDEN	B1	Q1	30	30	-	**5**
ELEN0047-1	*Superconductivity* - Philippe VANDERBEMDEN - [15h Labo.]	B1	Q1	30	-	[+]	**5**
ELEN0038-1	*Microsystems* (english language) - Michael KRAFT - [20h Labo., 40h Proj.]	B1	Q2	30	5	[+]	**5**
PHYS0046-2	*Quantum physics and applications to Condensed Matter* - Philippe GHOSEZ, Matthieu VERSTRAETE	B1	Q1	30	30	-	**5**
ELEN0069-1	*Nanoelectronics / Optoelectronics* (english language) - Benoît VANDERHEYDEN - [40h Proj.]	B1	Q2	30	-	[+]	**5**
PHYS0236-2	*Lasers in physics and applications* - Serge HABRAKEN	B1	Q2	30	30	-	**5**
PHYS3003-1	*Functional Materials : theory and modeling* (english language) - Philippe GHOSEZ	B1	Q1	20	10	-	**3**
PHYS3004-1	*Nanomaterials : theory and modeling* (english language) - JeanYves RATY	B1	Q1	20	10	-	**3**
PHYS0090-1	*Complex fluids and non-Newtonian flows* (english language) - Vincent TERRAPON	B1	Q1	30	30	-	**5**
AERO0001-1	*Aerodynamics* (english language) - Thomas ANDRIANNE, Vincent TERRAPON - [2h Labo., 25h Proj.]	B1	Q2	30	28	[+]	**5**
MECA0032-1	*Flow in turbomachineries* (english language) -	B1	TA	30	30	[+]	**5**

	ÉONARD - [60h Proj.]						
ESHY0070-1	*Dynamics of lower atmospherical layers and air-sea interactions* - Louis FRANÇOIS	B1	Q1	30	15	-	**5**
OCEA0081-1	*Numerical Methods in Geophysics - Part 2* - JeanMarie BECKERS	B1	Q1	15	30	-	**5**
OCEA0071-1	*Geophysical fluid dynamics - part 1* (english language) - JeanMarie BECKERS	B1	Q2	30	15	-	**5**
GBIO0014-2	*Modeling of physiological systems and clinical applications* - Thomas DESAIVE	B1	Q1	30	30	-	**5**
MECA0008-1	*Microfluidics* (english language) - Tristan GILET - [16h Labo., 14h Proj.]	B1	Q1	22	8	[+]	**5**
AERO0004-1	*Turbulent Flows* (english language) - Vincent TERRAPON - [40h Proj.]	B1	Q1	30	30	[+]	**5**
GBIO0022-1	*Biomimetism* (english language) - Philippe COMPÈRE, Liesbet GERIS, Tristan GILET, Eric PARMENTIER, Davide RUFFONI - [45h Proj.]	B1	TA	15	-	[+]	**5**
AERO0030-1	*Computational fluid dynamics* (english language) - Vincent TERRAPON - [10h Labo.]	B1	Q2	30	20	[+]	**5**
MECA0023-1	*Advanced solid mechanics* (english language) - JeanPhilippe PONTHOT - [20h Proj.]	B1	Q1	30	30	[+]	**5**
MECA0027-1	*Structural and multidisciplinary optimization* - Pierre DUYSINX, Patricia TOSSINGS - [18h Proj.]	B1	Q1	30	12	[+]	**5**
MECA0058-1	*Fracture mechanics, damage and fatigue* (english language) - Ludovic NOELS - [75h Proj.]	B1	Q1	30	10	[+]	**5**
MECA0470-1	*New methodsin computational mechanics* (english language) - Maarten ARNST, Eric BÉCHET, Ludovic NOELS - [40h Proj.]	B1	Q2	20	-	[+]	**5**
MECA0464-1	*Large deformation of solids* (english language) - JeanPhilippe PONTHOT - [60h Proj.]	B1	Q1	30	30	[+]	**5**
AERO0032-1	*Aeroelasticity and experimental aerodynamics* (english language) - Thomas ANDRIANNE	B1	Q1	30	30	-	**5**
MECA0029-1	*Theory of vibration* (english language) - JeanClaude GOLINVAL - [30h Proj.]	B1	Q1	30	30	[+]	**5**
MECA0502-1	*Mechanics of composites* (english language) - Michaël BRUYNEEL	B1	Q1	30	30	-	**5**
GBIO0012-2	*Biomechanics* (english language) - Davide RUFFONI - [1d FW]	B1	Q1	30	30	[+]	**5**
MECA0009-2	*Introduction to microtechnology* (english language) - Tristan GILET - [8h Labo., 22h Proj.]	B1	Q2	12	12	[+]	**5**
MECA0010-1	*Scholastic modelling* (english language) - Maarten ARNST - [28h Proj.]	B1	Q2	16	16	[+]	**5**
GBIO0022-1	*Biomimetism* (english language) - Philippe COMPÈRE, Liesbet GERIS, Tristan GILET, Eric PARMENTIER, Davide RUFFONI - [45h Proj.]	B1	TA	15	-	[+]	**5**
ELEN0017-1	*Analysis and Design of Telecommunications Systems* (english language) - Marc VAN DROOGENBROECK	B1	Q1	30	30	-	**5**
ASTR0004-2	*Astrophysics and Space Techniques* (english language) - Jean SURDEJ - [5h Labo., 5h Proj., 5d FW]	B1	TA	30	15	[+]	**5**
AERO0024-1	*Astrodynamics* (english language) - Gaëtan KERSCHEN - [20h Proj.]	B1	Q1	30	30	[+]	**5**

AERO0018-3	*Space experiment development* (english language) - Pierre ROCHUS	B1	Q1	30	30	-	**5**
ELEN0008-1	*Principles of analog and digital telecommunications systems* - Marc VAN DROOGENBROECK	B1	Q2	30	30	-	**5**
SPAT0012-1	*General relativity, Part 1: Introduction* - Yves DE ROP	B1	Q1	20	-	-	**2**
SPAT0012-2	*General relativity, Part 2: Mathematics methods* - Yves DE ROP	B1	Q1	20	-	-	**2**
SPAT0012-3	*General relativity, Part 3: supplement* - Yves DE ROP	B1	Q2	20	-	-	**2**
SPAT0032-2	*remote sensing* (english language) - Christian BARBIER	B1	Q1	30	30	-	**5**
SPAT0039-1	*Spectroscopy in astrophysics and geophysics* (english language) - Jerôme LOICQ	B1	Q1	20	10	-	**3**
SPAT0001-1	*Plasma physics* (english language) - Benoît HUBERT	B1	Q2	25	5	-	**3**
SPAT0021-1	*Introduction to astroparticles* (english language) - Joseph CUGNON	B1	Q1	20	10	-	**3**
SPAT0035-1	*Space exploration* (english language) - Grégor RAUW	B1	Q1	30	10	-	**3**
SPAT0036-1	*Celestial mechanics and space trajectories* (english language) - Grégor RAUW	B1	Q1	20	10	-	**3**
ELEN0071-1	*Digital Signal Processing* (english language) - Jacques VERLY - [40h Proj.]	B1	Q2	45	15	[+]	**5**
ELEN0060-2	*Information and coding theory* (english language) - Louis WEHENKEL - [30h Proj.]	B1	Q2	30	15	[+]	**5**
OCEA0081-1	*Numerical Methods in Geophysics - Part 2* - JeanMarie BECKERS	B1	Q1	15	30	-	**5**
MATH0462-1	*Discrete optimization* (english language) - Quentin LOUVEAUX - [25h Proj.]	B1	Q1	30	20	[+]	**5**
SYST0017-1	*Advanced topics in systems and control* (english language) - Guillaume DRION	B1	Q1	30	30	-	**5**
ELEC0041-1	*Modelling and design of electromagnetic systems* (english language) - Patrick DULAR, Christophe GEUZAINE	B1	Q2	30	30	-	**5**
GBIO0011-1	*Biological Systems Modelling* - Pierre DAUBY, Liesbet GERIS	B1	Q2	30	30	-	**5**
MATH0049-1	*Morphological Characterization of Unordered Systems* - Silvia BLACHER	B1	Q1	30	30	-	**5**
GBIO0013-1	*Phenomenon of Transport in Biology* - Dominique TOYE	B1	Q2	30	30	-	**5**
SPAT0061-1	*Group theory and astroparticles* (english language) - Diego ARISTIZABAL SIERRA	B1	Q2	30	-	-	**3**
SPAT0036-1	*Celestial mechanics and space trajectories* (english language) - Grégor RAUW	B1	Q1	20	10	-	**3**
INFO2046-2	*Computational geometry* (english language) - Eric BÉCHET - [95h Proj.]	B1	Q1	25	-	[+]	**5**
ASTG0025-1	*Internship or placement in a research centre* - Tristan GILET	B1	TA	-	-	-	**10**

Fluid Mechanics (B1 : 30Cr)

[...] Choose courses totalling 20 ECTS from the following :

PHYS0090-1	*Complex fluids and non-Newtonian flows* (english language) - Vincent TERRAPON	B1	Q1	30	30	-	**5**
AERO0001-1	*Aerodynamics* (english language) - Thomas ANDRIANNE, Vincent TERRAPON - [2h Labo., 25h Proj.]	B1	Q2	30	28	[+]	**5**

MECA0032-1	*Flow in turbomachineries* (english language) - Olivier LÉONARD - [60h Proj.]	B1	TA	30	30	[+]	**5**
ESHY0070-1	*Dynamics of lower atmospherical layers and air-sea interactions* - Louis FRANÇOIS	B1	Q1	30	15	-	**5**
OCEA0081-1	*Numerical Methods in Geophysics - Part 2* - JeanMarie BECKERS	B1	Q1	15	30	-	**5**
OCEA0071-1	*Geophysical fluid dynamics - part 1* (english language) - JeanMarie BECKERS	B1	Q2	30	15	-	**5**
GBIO0014-2	*Modeling of physiological systems and clinical applications* - Thomas DESAIVE	B1	Q1	30	30	-	**5**
MECA0008-1	*Microfluidics* (english language) - Tristan GILET - [16h Labo., 14h Proj.]	B1	Q1	22	8	[+]	**5**
AERO0004-1	*Turbulent Flows* (english language) - Vincent TERRAPON - [40h Proj.]	B1	Q1	30	30	[+]	**5**
GBIO0022-1	*Biomimetism* (english language) - Philippe COMPÈRE, Liesbet GERIS, Tristan GILET, Eric PARMENTIER, Davide RUFFONI - [45h Proj.]	B1	TA	15	-	[+]	**5**
AERO0030-1	*Computational fluid dynamics* (english language) - Vincent TERRAPON - [10h Labo.]	B1	Q2	30	20	[+]	**5**

[...] Choose one placement or courses totaling 10 ECTS from the following lists : "Physical Electronics", "Fluid Mechanics", "Solid Mechanics", "Space Science" and "Mathematical, digital and multiphysical methods".

ELEN0004-1	*Semiconductor devices* (english language) - Benoît VANDERHEYDEN	B1	Q1	30	30	-	**5**
ELEN0047-1	*Superconductivity* - Philippe VANDERBEMDEN - [15h Labo.]	B1	Q1	30	-	[+]	**5**
ELEN0038-1	*Microsystems* (english language) - Michael KRAFT - [20h Labo., 40h Proj.]	B1	Q2	30	5	[+]	**5**
PHYS0046-2	*Quantum physics and applications to Condensed Matter* - Philippe GHOSEZ, Matthieu VERSTRAETE	B1	Q1	30	30	-	**5**
ELEN0069-1	*Nanoelectronics / Optoelectronics* (english language) - Benoît VANDERHEYDEN - [40h Proj.]	B1	Q2	30	-	[+]	**5**
PHYS0236-2	*Lasers in physics and applications* - Serge HABRAKEN	B1	Q2	30	30	-	**5**
PHYS3003-1	*Functional Materials : theory and modeling* (english language) - Philippe GHOSEZ	B1	Q1	20	10	-	**3**
PHYS3004-1	*Nanomaterials : theory and modeling* (english language) - JeanYves RATY	B1	Q1	20	10	-	**3**
PHYS0090-1	*Complex fluids and non-Newtonian flows* (english language) - Vincent TERRAPON	B1	Q1	30	30	-	**5**
AERO0001-1	*Aerodynamics* (english language) - Thomas ANDRIANNE, Vincent TERRAPON - [2h Labo., 25h Proj.]	B1	Q2	30	28	[+]	**5**
MECA0032-1	*Flow in turbomachineries* (english language) - Olivier LÉONARD - [60h Proj.]	B1	TA	30	30	[+]	**5**
ESHY0070-1	*Dynamics of lower atmospherical layers and air-sea interactions* - Louis FRANÇOIS	B1	Q1	30	15	-	**5**
OCEA0081-1	*Numerical Methods in Geophysics - Part 2* - JeanMarie BECKERS	B1	Q1	15	30	-	**5**
OCEA0071-1	*Geophysical fluid dynamics - part 1* (english language) - JeanMarie BECKERS	B1	Q2	30	15	-	**5**
GBIO0014-2	*Modeling of physiological systems and clinical applications*	B1	Q1	30	30	-	**5**

	- Thomas DESAIVE						
MECA0008-1	*Microfluidics* (english language) - Tristan GILET - [16h Labo., 14h Proj.]	B1	Q1	22	8	[+]	**5**
AERO0004-1	*Turbulent Flows* (english language) - Vincent TERRAPON - [40h Proj.]	B1	Q1	30	30	[+]	**5**
GBIO0022-1	*Biomimetism* (english language) - Philippe COMPÈRE, Liesbet GERIS, Tristan GILET, Eric PARMENTIER, Davide RUFFONI - [45h Proj.]	B1	TA	15	-	[+]	**5**
AERO0030-1	*Computational fluid dynamics* (english language) - Vincent TERRAPON - [10h Labo.]	B1	Q2	30	20	[+]	**5**
MECA0023-1	*Advanced solid mechanics* (english language) - JeanPhilippe PONTHOT - [20h Proj.]	B1	Q1	30	30	[+]	**5**
MECA0027-1	*Structural and multidisciplinary optimization* - Pierre DUYSINX, Patricia TOSSINGS - [18h Proj.]	B1	Q1	30	12	[+]	**5**
MECA0058-1	*Fracture mechanics, damage and fatigue* (english language) - Ludovic NOELS - [75h Proj.]	B1	Q1	30	10	[+]	**5**
MECA0470-1	*New methodsin computational mechanics* (english language) - Maarten ARNST, Eric BÉCHET, Ludovic NOELS - [40h Proj.]	B1	Q2	20	-	[+]	**5**
MECA0464-1	*Large deformation of solids* (english language) - JeanPhilippe PONTHOT - [60h Proj.]	B1	Q1	30	30	[+]	**5**
AERO0032-1	*Aeroelasticity and experimental aerodynamics* (english language) - Thomas ANDRIANNE	B1	Q1	30	30	-	**5**
MECA0029-1	*Theory of vibration* (english language) - JeanClaude GOLINVAL - [30h Proj.]	B1	Q1	30	30	[+]	**5**
MECA0502-1	*Mechanics of composites* (english language) - Michaël BRUYNEEL	B1	Q1	30	30	-	**5**
GBIO0012-2	*Biomechanics* (english language) - Davide RUFFONI - [1d FW]	B1	Q1	30	30	[+]	**5**
MECA0009-2	*Introduction to microtechnology* (english language) - Tristan GILET - [8h Labo., 22h Proj.]	B1	Q2	12	12	[+]	**5**
MECA0010-1	*Scholastic modelling* (english language) - Maarten ARNST - [28h Proj.]	B1	Q2	16	16	[+]	**5**
GBIO0022-1	*Biomimetism* (english language) - Philippe COMPÈRE, Liesbet GERIS, Tristan GILET, Eric PARMENTIER, Davide RUFFONI - [45h Proj.]	B1	TA	15	-	[+]	**5**
ELEN0017-1	*Analysis and Design of Telecommunications Systems* (english language) - Marc VAN DROOGENBROECK	B1	Q1	30	30	-	**5**
ASTR0004-2	*Astrophysics and Space Techniques* (english language) - Jean SURDEJ - [5h Labo., 5h Proj., 5d FW]	B1	TA	30	15	[+]	**5**
AERO0024-1	*Astrodynamics* (english language) - Gaëtan KERSCHEN - [20h Proj.]	B1	Q1	30	30	[+]	**5**
AERO0018-3	*Space experiment development* (english language) - Pierre ROCHUS	B1	Q1	30	30	-	**5**
ELEN0008-1	*Principles of analog and digital telecommunications systems* - Marc VAN DROOGENBROECK	B1	Q2	30	30	-	**5**
SPAT0012-1	*General relativity, Part 1: Introduction* - Yves DE ROP	B1	Q1	20	-	-	**2**
SPAT0012-2	*General relativity, Part 2: Mathematics methods* - Yves DE ROP	B1	Q1	20	-	-	**2**

SPAT0012-3	*General relativity, Part 3: supplement* - Yves DE ROP	B1	Q2	20	-	-	**2**
SPAT0032-2	*remote sensing* (english language) - Christian BARBIER	B1	Q1	30	30	-	**5**
SPAT0039-1	*Spectroscopy in astrophysics and geophysics* (english language) - Jerôme LOICQ	B1	Q1	20	10	-	**3**
SPAT0001-1	*Plasma physics* (english language) - Benoît HUBERT	B1	Q2	25	5	-	**3**
SPAT0021-1	*Introduction to astroparticles* (english language) - Joseph CUGNON	B1	Q1	20	10	-	**3**
SPAT0035-1	*Space exploration* (english language) - Grégor RAUW	B1	Q1	30	10	-	**3**
SPAT0036-1	*Celestial mechanics and space trajectories* (english language) - Grégor RAUW	B1	Q1	20	10	-	**3**
ELEN0071-1	*Digital Signal Processing* (english language) - Jacques VERLY - [40h Proj.]	B1	Q2	45	15	[+]	**5**
ELEN0060-2	*Information and coding theory* (english language) - Louis WEHENKEL - [30h Proj.]	B1	Q2	30	15	[+]	**5**
OCEA0081-1	*Numerical Methods in Geophysics - Part 2* - JeanMarie BECKERS	B1	Q1	15	30	-	**5**
MATH0462-1	*Discrete optimization* (english language) - Quentin LOUVEAUX - [25h Proj.]	B1	Q1	30	20	[+]	**5**
SYST0017-1	*Advanced topics in systems and control* (english language) - Guillaume DRION	B1	Q1	30	30	-	**5**
ELEC0041-1	*Modelling and design of electromagnetic systems* (english language) - Patrick DULAR, Christophe GEUZAINE	B1	Q2	30	30	-	**5**
GBIO0011-1	*Biological Systems Modelling* - Pierre DAUBY, Liesbet GERIS	B1	Q2	30	30	-	**5**
MATH0049-1	*Morphological Characterization of Unordered Systems* - Silvia BLACHER	B1	Q1	30	30	-	**5**
GBIO0013-1	*Phenomenon of Transport in Biology* - Dominique TOYE	B1	Q2	30	30	-	**5**
SPAT0061-1	*Group theory and astroparticles* (english language) - Diego ARISTIZABAL SIERRA	B1	Q2	30	-	-	**3**
SPAT0036-1	*Celestial mechanics and space trajectories* (english language) - Grégor RAUW	B1	Q1	20	10	-	**3**
INFO2046-2	*Computational geometry* (english language) - Eric BÉCHET - [95h Proj.]	B1	Q1	25	-	[+]	**5**
ASTG0025-1	*Internship or placement in a research centre* - Tristan GILET	B1	TA	-	-	-	**10**

Solid Mechanics (B1 : 30Cr)

[...] Choose courses totalling 20 ECTS from the following :

MECA0023-1	*Advanced solid mechanics* (english language) - JeanPhilippe PONTHOT - [20h Proj.]	B1	Q1	30	30	[+]	**5**
MECA0027-1	*Structural and multidisciplinary optimization* - Pierre DUYSINX, Patricia TOSSINGS - [18h Proj.]	B1	Q1	30	12	[+]	**5**
MECA0058-1	*Fracture mechanics, damage and fatigue* (english language) - Ludovic NOELS - [75h Proj.]	B1	Q1	30	10	[+]	**5**
MECA0470-1	*New methodsin computational mechanics* (english language) - Maarten ARNST, Eric BÉCHET, Ludovic NOELS - [40h Proj.]	B1	Q2	20	-	[+]	**5**
MECA0464-1	*Large deformation of solids* (english language) - JeanPhilippe PONTHOT - [60h Proj.]	B1	Q1	30	30	[+]	**5**
AERO0032-1	*Aeroelasticity and experimental aerodynamics* (english	B1	Q1	30	30	-	**5**

	language) - Thomas ANDRIANNE						
MECA0029-1	*Theory of vibration* (english language) - JeanClaude GOLINVAL - [30h Proj.]	B1	Q1	30	30	[+]	**5**
MECA0502-1	*Mechanics of composites* (english language) - Michaël BRUYNEEL	B1	Q1	30	30	-	**5**
GBIO0012-2	*Biomechanics* (english language) - Davide RUFFONI - [1d FW]	B1	Q1	30	30	[+]	**5**
MECA0009-2	*Introduction to microtechnology* (english language) - Tristan GILET - [8h Labo., 22h Proj.]	B1	Q2	12	12	[+]	**5**
MECA0010-1	*Scholastic modelling* (english language) - Maarten ARNST - [28h Proj.]	B1	Q2	16	16	[+]	**5**
GBIO0022-1	*Biomimetism* (english language) - Philippe COMPÈRE, Liesbet GERIS, Tristan GILET, Eric PARMENTIER, Davide RUFFONI - [45h Proj.]	B1	TA	15	-	[+]	**5**

[...] Choose one placement or courses totaling 10 ECTS from the following lists : "Physical Electronics", "Fluid Mechanics", "Solid Mechanics", "Space Science" and "Mathematical, digital and multiphysical methods".

ELEN0004-1	*Semiconductor devices* (english language) - Benoît VANDERHEYDEN	B1	Q1	30	30	-	**5**
ELEN0047-1	*Superconductivity* - Philippe VANDERBEMDEN - [15h Labo.]	B1	Q1	30	-	[+]	**5**
ELEN0038-1	*Microsystems* (english language) - Michael KRAFT - [20h Labo., 40h Proj.]	B1	Q2	30	5	[+]	**5**
PHYS0046-2	*Quantum physics and applications to Condensed Matter* - Philippe GHOSEZ, Matthieu VERSTRAETE	B1	Q1	30	30	-	**5**
ELEN0069-1	*Nanoelectronics / Optoelectronics* (english language) - Benoît VANDERHEYDEN - [40h Proj.]	B1	Q2	30	-	[+]	**5**
PHYS0236-2	*Lasers in physics and applications* - Serge HABRAKEN	B1	Q2	30	30	-	**5**
PHYS3003-1	*Functional Materials : theory and modeling* (english language) - Philippe GHOSEZ	B1	Q1	20	10	-	**3**
PHYS3004-1	*Nanomaterials : theory and modeling* (english language) - JeanYves RATY	B1	Q1	20	10	-	**3**
PHYS0090-1	*Complex fluids and non-Newtonian flows* (english language) - Vincent TERRAPON	B1	Q1	30	30	-	**5**
AERO0001-1	*Aerodynamics* (english language) - Thomas ANDRIANNE, Vincent TERRAPON - [2h Labo., 25h Proj.]	B1	Q2	30	28	[+]	**5**
MECA0032-1	*Flow in turbomachineries* (english language) - Olivier LÉONARD - [60h Proj.]	B1	TA	30	30	[+]	**5**
ESHY0070-1	*Dynamics of lower atmospherical layers and air-sea interactions* - Louis FRANÇOIS	B1	Q1	30	15	-	**5**
OCEA0081-1	*Numerical Methods in Geophysics - Part 2* - JeanMarie BECKERS	B1	Q1	15	30	-	**5**
OCEA0071-1	*Geophysical fluid dynamics - part 1* (english language) - JeanMarie BECKERS	B1	Q2	30	15	-	**5**
GBIO0014-2	*Modeling of physiological systems and clinical applications* - Thomas DESAIVE	B1	Q1	30	30	-	**5**
MECA0008-1	*Microfluidics* (english language) - Tristan GILET - [16h Labo., 14h Proj.]	B1	Q1	22	8	[+]	**5**
AERO0004-1	*Turbulent Flows* (english language) - Vincent TERRAPON - [40h Proj.]	B1	Q1	30	30	[+]	**5**

GBIO0022-1	*Biomimetism* (english language) - Philippe COMPÈRE, Liesbet GERIS, Tristan GILET, Eric PARMENTIER, Davide RUFFONI - [45h Proj.]	B1	TA	15	-	[+]	**5**
AERO0030-1	*Computational fluid dynamics* (english language) - Vincent TERRAPON - [10h Labo.]	B1	Q2	30	20	[+]	**5**
MECA0023-1	*Advanced solid mechanics* (english language) - JeanPhilippe PONTHOT - [20h Proj.]	B1	Q1	30	30	[+]	**5**
MECA0027-1	*Structural and multidisciplinary optimization* - Pierre DUYSINX, Patricia TOSSINGS - [18h Proj.]	B1	Q1	30	12	[+]	**5**
MECA0058-1	*Fracture mechanics, damage and fatigue* (english language) - Ludovic NOELS - [75h Proj.]	B1	Q1	30	10	[+]	**5**
MECA0470-1	*New methodsin computational mechanics* (english language) - Maarten ARNST, Eric BÉCHET, Ludovic NOELS - [40h Proj.]	B1	Q2	20	-	[+]	**5**
MECA0464-1	*Large deformation of solids* (english language) - JeanPhilippe PONTHOT - [60h Proj.]	B1	Q1	30	30	[+]	**5**
AERO0032-1	*Aeroelasticity and experimental aerodynamics* (english language) - Thomas ANDRIANNE	B1	Q1	30	30	-	**5**
MECA0029-1	*Theory of vibration* (english language) - JeanClaude GOLINVAL - [30h Proj.]	B1	Q1	30	30	[+]	**5**
MECA0502-1	*Mechanics of composites* (english language) - Michaël BRUYNEEL	B1	Q1	30	30	-	**5**
GBIO0012-2	*Biomechanics* (english language) - Davide RUFFONI - [1d FW]	B1	Q1	30	30	[+]	**5**
MECA0009-2	*Introduction to microtechnology* (english language) - Tristan GILET - [8h Labo., 22h Proj.]	B1	Q2	12	12	[+]	**5**
MECA0010-1	*Scholastic modelling* (english language) - Maarten ARNST - [28h Proj.]	B1	Q2	16	16	[+]	**5**
GBIO0022-1	*Biomimetism* (english language) - Philippe COMPÈRE, Liesbet GERIS, Tristan GILET, Eric PARMENTIER, Davide RUFFONI - [45h Proj.]	B1	TA	15	-	[+]	**5**
ELEN0017-1	*Analysis and Design of Telecommunications Systems* (english language) - Marc VAN DROOGENBROECK	B1	Q1	30	30	-	**5**
ASTR0004-2	*Astrophysics and Space Techniques* (english language) - Jean SURDEJ - [5h Labo., 5h Proj., 5d FW]	B1	TA	30	15	[+]	**5**
AERO0024-1	*Astrodynamics* (english language) - Gaëtan KERSCHEN - [20h Proj.]	B1	Q1	30	30	[+]	**5**
AERO0018-3	*Space experiment development* (english language) - Pierre ROCHUS	B1	Q1	30	30	-	**5**
ELEN0008-1	*Principles of analog and digital telecommunications systems* - Marc VAN DROOGENBROECK	B1	Q2	30	30	-	**5**
SPAT0012-1	*General relativity, Part 1: Introduction* - Yves DE ROP	B1	Q1	20	-	-	**2**
SPAT0012-2	*General relativity, Part 2: Mathematics methods* - Yves DE ROP	B1	Q1	20	-	-	**2**
SPAT0012-3	*General relativity, Part 3: supplement* - Yves DE ROP	B1	Q2	20	-	-	**2**
SPAT0032-2	*remote sensing* (english language) - Christian BARBIER	B1	Q1	30	30	-	**5**
SPAT0039-1	*Spectroscopy in astrophysics and geophysics* (english language) - Jerôme LOICQ	B1	Q1	20	10	-	**3**
SPAT0001-1	*Plasma physics* (english language) - Benoît HUBERT	B1	Q2	25	5	-	**3**

SPAT0021-1	*Introduction to astroparticles* (english language) - Joseph CUGNON	B1	Q1	20	10	-	**3**
SPAT0035-1	*Space exploration* (english language) - Grégor RAUW	B1	Q1	30	10	-	**3**
SPAT0036-1	*Celestial mechanics and space trajectories* (english language) - Grégor RAUW	B1	Q1	20	10	-	**3**
ELEN0071-1	*Digital Signal Processing* (english language) - Jacques VERLY - [40h Proj.]	B1	Q2	45	15	[+]	**5**
ELEN0060-2	*Information and coding theory* (english language) - Louis WEHENKEL - [30h Proj.]	B1	Q2	30	15	[+]	**5**
OCEA0081-1	*Numerical Methods in Geophysics - Part 2* - JeanMarie BECKERS	B1	Q1	15	30	-	**5**
MATH0462-1	*Discrete optimization* (english language) - Quentin LOUVEAUX - [25h Proj.]	B1	Q1	30	20	[+]	**5**
SYST0017-1	*Advanced topics in systems and control* (english language) - Guillaume DRION	B1	Q1	30	30	-	**5**
ELEC0041-1	*Modelling and design of electromagnetic systems* (english language) - Patrick DULAR, Christophe GEUZAINE	B1	Q2	30	30	-	**5**
GBIO0011-1	*Biological Systems Modelling* - Pierre DAUBY, Liesbet GERIS	B1	Q2	30	30	-	**5**
MATH0049-1	*Morphological Characterization of Unordered Systems* - Silvia BLACHER	B1	Q1	30	30	-	**5**
GBIO0013-1	*Phenomenon of Transport in Biology* - Dominique TOYE	B1	Q2	30	30	-	**5**
SPAT0061-1	*Group theory and astroparticles* (english language) - Diego ARISTIZABAL SIERRA	B1	Q2	30	-	-	**3**
SPAT0036-1	*Celestial mechanics and space trajectories* (english language) - Grégor RAUW	B1	Q1	20	10	-	**3**
INFO2046-2	*Computational geometry* (english language) - Eric BÉCHET - [95h Proj.]	B1	Q1	25	-	[+]	**5**
ASTG0025-1	*Internship or placement in a research centre* - Tristan GILET	B1	TA	-	-	-	**10**

Space Sciences (B1 : 30Cr)

[...] Choose courses totalling 20 ECTS from the following :

ELEN0017-1	*Analysis and Design of Telecommunications Systems* (english language) - Marc VAN DROOGENBROECK	B1	Q1	30	30	-	**5**
ASTR0004-2	*Astrophysics and Space Techniques* (english language) - Jean SURDEJ - [5h Labo., 5h Proj., 5d FW]	B1	TA	30	15	[+]	**5**
AERO0024-1	*Astrodynamics* (english language) - Gaëtan KERSCHEN - [20h Proj.]	B1	Q1	30	30	[+]	**5**
AERO0018-3	*Space experiment development* (english language) - Pierre ROCHUS	B1	Q1	30	30	-	**5**
ELEN0008-1	*Principles of analog and digital telecommunications systems* - Marc VAN DROOGENBROECK	B1	Q2	30	30	-	**5**
SPAT0012-1	*General relativity, Part 1: Introduction* - Yves DE ROP	B1	Q1	20	-	-	**2**
SPAT0012-2	*General relativity, Part 2: Mathematics methods* - Yves DE ROP	B1	Q1	20	-	-	**2**
SPAT0012-3	*General relativity, Part 3: supplement* - Yves DE ROP	B1	Q2	20	-	-	**2**
SPAT0032-2	*remote sensing* (english language) - Christian BARBIER	B1	Q1	30	30	-	**5**
SPAT0039-1	*Spectroscopy in astrophysics and geophysics* (english language) - Jerôme LOICQ	B1	Q1	20	10	-	**3**

SPAT0001-1	*Plasma physics* (english language) - Benoît HUBERT	B1	Q2	25	5	-	**3**
SPAT0021-1	*Introduction to astroparticles* (english language) - Joseph CUGNON	B1	Q1	20	10	-	**3**
SPAT0035-1	*Space exploration* (english language) - Grégor RAUW	B1	Q1	30	10	-	**3**
SPAT0036-1	*Celestial mechanics and space trajectories* (english language) - Grégor RAUW	B1	Q1	20	10	-	**3**

Notice : At most, and in agreement with the Jury, 5 of these credits may be selected in the program of another Master of the University.

[...] Choose one placement or courses totaling 10 ECTS from the following lists : "Physical Electronics", "Fluid Mechanics", "Solid Mechanics", "Space Science" and "Mathematical, digital and multiphysical methods".

ELEN0004-1	*Semiconductor devices* (english language) - Benoît VANDERHEYDEN	B1	Q1	30	30	-	**5**
ELEN0047-1	*Superconductivity* - Philippe VANDERBEMDEN - [15h Labo.]	B1	Q1	30	-	[+]	**5**
ELEN0038-1	*Microsystems* (english language) - Michael KRAFT - [20h Labo., 40h Proj.]	B1	Q2	30	5	[+]	**5**
PHYS0046-2	*Quantum physics and applications to Condensed Matter* - Philippe GHOSEZ, Matthieu VERSTRAETE	B1	Q1	30	30	-	**5**
ELEN0069-1	*Nanoelectronics / Optoelectronics* (english language) - Benoît VANDERHEYDEN - [40h Proj.]	B1	Q2	30	-	[+]	**5**
PHYS0236-2	*Lasers in physics and applications* - Serge HABRAKEN	B1	Q2	30	30	-	**5**
PHYS3003-1	*Functional Materials : theory and modeling* (english language) - Philippe GHOSEZ	B1	Q1	20	10	-	**3**
PHYS3004-1	*Nanomaterials : theory and modeling* (english language) - JeanYves RATY	B1	Q1	20	10	-	**3**
PHYS0090-1	*Complex fluids and non-Newtonian flows* (english language) - Vincent TERRAPON	B1	Q1	30	30	-	**5**
AERO0001-1	*Aerodynamics* (english language) - Thomas ANDRIANNE, Vincent TERRAPON - [2h Labo., 25h Proj.]	B1	Q2	30	28	[+]	**5**
MECA0032-1	*Flow in turbomachineries* (english language) - Olivier LÉONARD - [60h Proj.]	B1	TA	30	30	[+]	**5**
ESHY0070-1	*Dynamics of lower atmospherical layers and air-sea interactions* - Louis FRANÇOIS	B1	Q1	30	15	-	**5**
OCEA0081-1	*Numerical Methods in Geophysics - Part 2* - JeanMarie BECKERS	B1	Q1	15	30	-	**5**
OCEA0071-1	*Geophysical fluid dynamics - part 1* (english language) - JeanMarie BECKERS	B1	Q2	30	15	-	**5**
GBIO0014-2	*Modeling of physiological systems and clinical applications* - Thomas DESAIVE	B1	Q1	30	30	-	**5**
MECA0008-1	*Microfluidics* (english language) - Tristan GILET - [16h Labo., 14h Proj.]	B1	Q1	22	8	[+]	**5**
AERO0004-1	*Turbulent Flows* (english language) - Vincent TERRAPON - [40h Proj.]	B1	Q1	30	30	[+]	**5**
GBIO0022-1	*Biomimetism* (english language) - Philippe COMPÈRE, Liesbet GERIS, Tristan GILET, Eric PARMENTIER, Davide RUFFONI - [45h Proj.]	B1	TA	15	-	[+]	**5**
AERO0030-1	*Computational fluid dynamics* (english language) - Vincent TERRAPON - [10h Labo.]	B1	Q2	30	20	[+]	**5**
MECA0023-1	*Advanced solid mechanics* (english language) -	B1	Q1	30	30	[+]	**5**

	JeanPhilippe PONTHOT - [20h Proj.]						
MECA0027-1	*Structural and multidisciplinary optimization* - Pierre DUYSINX, Patricia TOSSINGS - [18h Proj.]	B1	Q1	30	12	[+]	**5**
MECA0058-1	*Fracture mechanics, damage and fatigue* (english language) - Ludovic NOELS - [75h Proj.]	B1	Q1	30	10	[+]	**5**
MECA0470-1	*New methodsin computational mechanics* (english language) - Maarten ARNST, Eric BÉCHET, Ludovic NOELS - [40h Proj.]	B1	Q2	20	-	[+]	**5**
MECA0464-1	*Large deformation of solids* (english language) - JeanPhilippe PONTHOT - [60h Proj.]	B1	Q1	30	30	[+]	**5**
AERO0032-1	*Aeroelasticity and experimental aerodynamics* (english language) - Thomas ANDRIANNE	B1	Q1	30	30	-	**5**
MECA0029-1	*Theory of vibration* (english language) - JeanClaude GOLINVAL - [30h Proj.]	B1	Q1	30	30	[+]	**5**
MECA0502-1	*Mechanics of composites* (english language) - Michaël BRUYNEEL	B1	Q1	30	30	-	**5**
GBIO0012-2	*Biomechanics* (english language) - Davide RUFFONI - [1d FW]	B1	Q1	30	30	[+]	**5**
MECA0009-2	*Introduction to microtechnology* (english language) - Tristan GILET - [8h Labo., 22h Proj.]	B1	Q2	12	12	[+]	**5**
MECA0010-1	*Scholastic modelling* (english language) - Maarten ARNST - [28h Proj.]	B1	Q2	16	16	[+]	**5**
GBIO0022-1	*Biomimetism* (english language) - Philippe COMPÈRE, Liesbet GERIS, Tristan GILET, Eric PARMENTIER, Davide RUFFONI - [45h Proj.]	B1	TA	15	-	[+]	**5**
ELEN0017-1	*Analysis and Design of Telecommunications Systems* (english language) - Marc VAN DROOGENBROECK	B1	Q1	30	30	-	**5**
ASTR0004-2	*Astrophysics and Space Techniques* (english language) - Jean SURDEJ - [5h Labo., 5h Proj., 5d FW]	B1	TA	30	15	[+]	**5**
AERO0024-1	*Astrodynamics* (english language) - Gaëtan KERSCHEN - [20h Proj.]	B1	Q1	30	30	[+]	**5**
AERO0018-3	*Space experiment development* (english language) - Pierre ROCHUS	B1	Q1	30	30	-	**5**
ELEN0008-1	*Principles of analog and digital telecommunications systems* - Marc VAN DROOGENBROECK	B1	Q2	30	30	-	**5**
SPAT0012-1	*General relativity, Part 1: Introduction* - Yves DE ROP	B1	Q1	20	-	-	**2**
SPAT0012-2	*General relativity, Part 2: Mathematics methods* - Yves DE ROP	B1	Q1	20	-	-	**2**
SPAT0012-3	*General relativity, Part 3: supplement* - Yves DE ROP	B1	Q2	20	-	-	**2**
SPAT0032-2	*remote sensing* (english language) - Christian BARBIER	B1	Q1	30	30	-	**5**
SPAT0039-1	*Spectroscopy in astrophysics and geophysics* (english language) - Jerôme LOICQ	B1	Q1	20	10	-	**3**
SPAT0001-1	*Plasma physics* (english language) - Benoît HUBERT	B1	Q2	25	5	-	**3**
SPAT0021-1	*Introduction to astroparticles* (english language) - Joseph CUGNON	B1	Q1	20	10	-	**3**
SPAT0035-1	*Space exploration* (english language) - Grégor RAUW	B1	Q1	30	10	-	**3**
SPAT0036-1	*Celestial mechanics and space trajectories* (english language) - Grégor RAUW	B1	Q1	20	10	-	**3**

ELEN0071-1	*Digital Signal Processing* (english language) - Jacques VERLY - [40h Proj.]	B1	Q2	45	15	[+]	**5**
ELEN0060-2	*Information and coding theory* (english language) - Louis WEHENKEL - [30h Proj.]	B1	Q2	30	15	[+]	**5**
OCEA0081-1	*Numerical Methods in Geophysics - Part 2* - JeanMarie BECKERS	B1	Q1	15	30	-	**5**
MATH0462-1	*Discrete optimization* (english language) - Quentin LOUVEAUX - [25h Proj.]	B1	Q1	30	20	[+]	**5**
SYST0017-1	*Advanced topics in systems and control* (english language) - Guillaume DRION	B1	Q1	30	30	-	**5**
ELEC0041-1	*Modelling and design of electromagnetic systems* (english language) - Patrick DULAR, Christophe GEUZAINE	B1	Q2	30	30	-	**5**
GBIO0011-1	*Biological Systems Modelling* - Pierre DAUBY, Liesbet GERIS	B1	Q2	30	30	-	**5**
MATH0049-1	*Morphological Characterization of Unordered Systems* - Silvia BLACHER	B1	Q1	30	30	-	**5**
GBIO0013-1	*Phenomenon of Transport in Biology* - Dominique TOYE	B1	Q2	30	30	-	**5**
SPAT0061-1	*Group theory and astroparticles* (english language) - Diego ARISTIZABAL SIERRA	B1	Q2	30	-	-	**3**
SPAT0036-1	*Celestial mechanics and space trajectories* (english language) - Grégor RAUW	B1	Q1	20	10	-	**3**
INFO2046-2	*Computational geometry* (english language) - Eric BÉCHET - [95h Proj.]	B1	Q1	25	-	[+]	**5**
ASTG0025-1	*Internship or placement in a research centre* - Tristan GILET	B1	TA	-	-	-	**10**

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

Compulsory courses (B1 : 30Cr)

ATFE9007-1	*Final thesis (included an introduction to research methodology)*	B1	TA	-	-	-	**25**

Optional courses (B1 : 5Cr)

Choose 1 course not taken in the 1st year amongst : (B1 : 1Nbr)

MECA0036-2	*Finite Element Method* (english language) - JeanPhilippe PONTHOT - [40h Proj.]	B1	Q2	30	30	[+]	**5**
MATH0024-1	*Modelling with partial differential equations* - Maarten ARNST - [25h Proj.]	B1	Q1	30	20	[+]	**5**
MATH0461-2	*Introduction to numerical optimization* (english language) - Quentin LOUVEAUX - [25h Proj.]	B1	Q1	30	20	[+]	**5**
SYST0003-1	*Linear control systems* (english language) - Guillaume DRION - [6h Labo.]	B1	Q1	30	30	[+]	**5**
INFO0939-1	*High performance scientific computing* (english language) - Christophe GEUZAINE - [20h Proj.]	B1	Q1	30	15	[+]	**5**
MATH0471-3	*Multiphysics integrated computational project* (english language) - Romain BOMAN, Christophe GEUZAINE - [70h Proj.]	B1	TA	20	-	[+]	**5**
PHYS0069-1	*Introduction to statistical physics* - Nicolas VANDEWALLE	B1	Q2	30	30	-	**5**
CHIM0202-3	*Physical Chemistry* - Bernard LEYH	B1	Q1	30	10	-	**5**
PHYS0048-1	*Coherent and incoherent optics* (english language) - Serge HABRAKEN	B1	Q1	30	30	-	**5**
SPAT0048-4	*Atmosphere of the earth and space environment* (english language) -	B1	Q2	45	15	-	**5**

	JeanClaude GÉRARD, Denis GRODENT						
PHYS0961-1	*Irreversibility, instabilities and chaos* - Pierre DAUBY	B1	Q1	30	30	-	**5**
ELEN0074-1	*Sensors, microsensors and instrumentation* (english language) - Philippe VANDERBEMDEN - [20h Labo.]	B1	Q2	30	-	[+]	**5**
APRI0006-1	*Personal experimental project* (english language) - Tristan GILET - [60h Proj.]	B1	TA	-	-	[+]	**5**