

## Two-Year Master Program (120 ECTS)

Access conditions to the Master ([http://www.ulg.ac.be/cms/c\\_46346/master-en-ingenieur-civil-en-informatique](http://www.ulg.ac.be/cms/c_46346/master-en-ingenieur-civil-en-informatique))

### First Year

#### Compulsory courses

SYST0003-1	<i>Linear control systems</i> (english language) - Eric BULLINGER	30	30	-	5
INFO0009-1	<i>Introduction to Data Bases</i> - Pierre WOLPER	30	30	-	5
INFO0085-2	<i>Compilers</i> - Pierre GEURTS	20	40	-	5
INFO0063-1	<i>Object-Oriented Software Engineering</i> - Bernard BOIGELOT	30	30	-	5
INFO0016-1	<i>Introduction to the theory of computation</i> (english language) - Pierre WOLPER	30	30	-	5
MATH0462-1	<i>Discrete optimization</i> - Quentin LOUVEAUX	30	30	-	5
INFO0051-1	<i>Logic</i> - Pascal GRIBOMONT	30	30	-	5
INFO0045-2	<i>Cryptography and Computer Security</i> - Benoît DONNET	30	30	-	5
INFO0064-1	<i>Embedded Systems</i> - Bernard BOIGELOT	30	30	-	5
INFO0031-1	<i>Computer network architectures and multimedia</i> (english language) - Guy LEDUC	30	30	-	5
ELEN0060-1	<i>Information and Coding Theory</i> - Louis WEHENKEL	30	30	-	5
[...]	Choose 5 ECTS from the optional courses of the master programme.				

### Second year

#### Compulsory courses

ATFE0015-1	<i>Final Work (including an introduction to methodology and research)</i> - COLLÉGIALITÉ -	-	-	-	25
[...]	A general course to be chosen from the University's programmes of courses ; this choice must be approved by the cycle's President of the Jury				

Choose one of the following focus :

#### Research Focus

##### Optional courses

Choose courses totalling 30 ECTS out of the following :

##### Computer

INFO0026-3	<i>Computer Graphics</i> - Eric BÉCHET	30	30	-	5
INFO0027-2	<i>Programming techniques</i> (english language) - Laurent MATHY	30	30	-	5
INFO0049-1	<i>Knowledge Representation</i> - Pascal GRIBOMONT	30	30	-	5
INFO0050-1	<i>Constrained programming</i> - Pascal GRIBOMONT	30	30	-	5
INFO0056-1	<i>Managing and securing computer networks</i> (english language) - Guy LEDUC	30	30	-	5
INFO0060-1	<i>Concurrent System Verification and Temporal Logic</i> - Bernard BOIGELOT, Pascal GRIBOMONT, Pierre WOLPER	30	30	-	5
INFO0939-1	<i>High performance scientific computing</i> (english language) - Christophe GEUZAINÉ	30	30	-	5
INFO2046-1	<i>Computational Geometry</i> - Eric BÉCHET	30	30	-	5
INFO0941-1	<i>Network measurement and monitoring</i> (english language) - Benoît DONNET	10	50	-	5
INFO0940-1	<i>Operating systems</i> (english language) - Laurent MATHY	30	30	-	5

##### Information processing

ELEN0002-1	<i>Introduction to Audio and Video Techniques</i> - JeanJacques EMBRECHTS	30	30	-	5
ELEN0016-1	<i>Digital Image Processing</i> - Marc VAN DROOGENBROECK	30	30	-	5
ELEN0019-1	<i>Treatment of the audio signals : principles and experiments</i> - JeanJacques EMBRECHTS	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

##### Biomedical Engineering

GBIO0008-1	<i>Medical imaging</i> (english language) - Christophe PHILLIPS	30	30	-	5
GBIO0009-1	<i>Bioinformatics</i> (english language) - Kristel VAN STEEN	30	30	-	5

GBIO0010-1	<i>Bioinstrumentation</i> - Jacques DESTINÉ	30	30	-	5
GBIO0011-1	<i>Biological systems modeling</i> - Pierre DAUBY, Rodolphe SEPULCHRE	30	30	-	5
<b>Modelling and Applied Mathematics</b>					
MATH0461-1	<i>Introduction to numerical optimization</i> (english language) - Quentin LOUVEAUX	30	30	-	5
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
<b>Electronics</b>					
ELEN0017-1	<i>Analysis and Design of Telecommunications Systems</i> - Marc VAN DROOGENBROECK	30	30	-	5
ELEN0018-1	<i>Electroacoustics</i> - JeanJacques EMBRECHTS	30	30	-	5
ELEN0037-1	<i>Microelectronics. Analysis and CAD of integrated circuits</i> - Jacques DESTINÉ	30	30	-	5
ELEN0038-1	<i>Microsystems</i> - Jacques DESTINÉ	30	30	-	5
<b>Placement</b>					
ASTG0020-1	<i>Internship</i> - COLLÉGIALITÉ	-	-	-	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.

### Professional focus in management

#### Compulsory courses

GEST3001-1	<i>People management and organisation</i> - Jocelyne ROBERT	24	24	-	4
GEST3002-1	<i>Human Resources</i> - Jocelyne ROBERT	24	-	-	2
GEST3003-1	<i>Competitive strategy in the marketplace</i> (english language) - Michael GHILISSEN	16	16	-	3
GEST3004-1	<i>Marketing (operations and management)</i> (english language) - Michael GHILISSEN	16	16	-	3
GEST3005-2	<i>Accountancy and Finance</i> - Jacques BERWART	24	24	-	4
GEST3006-1	<i>Operations and supply chain management I</i> (english language) - Yasemin ARDA	16	16	-	3
GSTG3001-1	<i>Business plan</i> - COLLÉGIALITÉ	-	30	-	4
GSTG3002-1	<i>Functional analysis of a company</i> - COLLÉGIALITÉ - [30h Internship]	-	-	[+]	4

#### Optional courses

Choose one of the following courses :

GEST3010-1	<i>Operations and supply chain management II</i> - Sabine LIMBOURG	16	16	-	3
GEST3011-2	<i>ICT for Business</i> - Alain DUBOIS	16	16	-	3
GEST3012-1	<i>Financial and actuarial modelling</i> - Louis ESCH	16	16	-	3

### Adjusted programme for student of the Bachelors in Civil Engineering who have not taken the "Computer" 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.
- \* cannot choose the professional "management" focus.

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

#### Compulsory prerequisites

ELEN0040-1	<i>Digital Electronics</i> - Jacques DESTINÉ	30	30	-	5
INFO0010-1	<i>Introduction to computer networking</i> (english language) - Guy LEDUC	30	30	-	5
INFO0012-1	<i>Computation structures</i> (english language) - Pierre WOLPER	30	30	-	5
INFO0054-1	<i>Functional programming</i> - Pascal GRIBOMONT	30	30	-	5
INFO0062-1	<i>Object-Oriented Programming</i> - Bernard BOIGELOT	30	30	-	5
INFO0902-1	<i>Data structures and algorithms</i> - Pierre GEURTS	30	30	-	5
INFO0030-5	<i>Programming Projects</i> - Benoît DONNET	6	20	-	2
INFO0004-1	<i>Object-oriented programming projects II</i> (english language) - Laurent MATHY	8	30	-	3
ELEN0008-1	<i>Principles of analog and digital telecommunications systems</i> - Marc VAN DROOGENBROECK	30	30	-	5