

## First Year

### 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

|            |  |    |    |   |   |
|------------|--|----|----|---|---|
| ELEC0431-1 | <i>Electromagnetic energy transformation</i> - Christophe GEUZAINÉ                             | 30 | 30 | - | 5 |
| ELEC0052-1 | <i>Analysis and Design of Electrical Measuring Systems</i> - Philippe VANDERBEMDEN             | 30 | 30 | - | 5 |
| ELEC0053-2 | <i>Electric circuits</i> - Patricia ROUSSEAU   | 30 | 30 | - | 5 |
| ELEN0008-1 | <i>Principles of analog and digital telecommunications systems</i> -<br>Marc VAN DROOGENBROECK | 30 | 30 | - | 5 |
| ELEN0040-1 | <i>Digital Electronics</i> - Jacques DESTINÉ   | 30 | 30 | - | 5 |
| ELEN0070-1 | <i>Signal Processing</i> - Jacques VERLY   | 30 | 30 | - | 5 |
| ELEN0075-1 | <i>Analog Electronics</i> - Benoît VANDERHEYDEN  | 30 | 30 | - | 5 |
| ELEN0076-1 | <i>Electromagnetism</i> - Patricia ROUSSEAU, Benoît VANDERHEYDEN                               | 30 | 30 | - | 5 |

### Compulsory courses

|            |  |    |    |   |   |
|------------|--|----|----|---|---|
| SYST0003-1 | <i>Linear control systems</i> - Eric BULLINGER, Rodolphe SEPULCHRE                 | 30 | 30 | - | 5 |
| INFO0012-1 | <i>Computation Structures</i> - Pierre WOLPER                                      | 30 | 30 | - | 5 |
| MATH0461-1 | <i>Introduction to numerical optimization (english)</i> - Quentin LOUVEAUX         | 30 | 30 | - | 5 |
| INFO0054-1 | <i>Functional programming</i> - Pascal GRIBOMONT                                   | 30 | 30 | - | 5 |
| ELEC0055-1 | <i>Electronic control systems</i> - Christophe GEUZAINÉ - Suppl : Paul BLEUS       | 30 | 30 | - | 5 |
| INFO0064-1 | <i>Embedded Systems</i> - Bernard BOIGELOT   | 30 | 30 | - | 5 |
| ELEN0017-1 | <i>Analysis and Design of Telecommunications Systems</i> - Marc VAN DROOGENBROECK  | 30 | 30 | - | 5 |
| ELEN0074-1 | <i>Sensors, microensors and instrumentation</i> - Philippe VANDERBEMDEN            | 30 | 30 | - | 5 |
| ELEN0004-1 | <i>The physics of semiconductor devices</i> - Benoît VANDERHEYDEN                  | 30 | 30 | - | 5 |
| ELEN0002-1 | <i>Introduction to Audio and Video Techniques</i> - Jean-Jacques EMBRECHTS         | 30 | 30 | - | 5 |
| ELEN0037-1 | <i>Microelectronics. Analysis and CAD of integrated circuits</i> - Jacques DESTINÉ | 30 | 30 | - | 5 |
| ELEN0060-1 | <i>Information and Coding Theory</i> - Louis WEHENKEL                              | 30 | 30 | - | 5 |

*Notice* : Students who have, in their BAC studies, have already taken one or more compulsory courses in this Master's programme are obliged to replace them by other courses on list of option courses; this choice must be approved by the President of the cycle's Jury.

## Second Year

### Compulsory courses

|            |  |   |   |   |    |
|------------|--|---|---|---|----|
| ATFE0014-1 | <i>Final Work (including an introduction to methodology and research)</i> - COLLÉGIALITÉ | - | - | - | 25 |
|------------|--|---|---|---|----|

### Optional courses

[...] 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

### Optional courses

Choose courses totalling 30 ECTS out of the following :

|            |   |    |    |     |   |
|------------|---|----|----|-----|---|
| ELEC0017-1 | <i>Indirect Effects of Electromagnetic Fields</i> - Véronique BEAUVOIS,<br>Jean-Louis LILIE | 30 | 30 | -   | 5 |
| ELEC0018-1 | <i>Energy market</i> - Yvan HELLA   | 45 | 15 | -   | 5 |
| ELEC0014-3 | <i>Electric Energy Transmission and Distribution</i> - Jean-Louis LILIE - [2,5d FW]         | 30 | 15 | [+] | 4 |
| ELEC0039-1 | <i>Network Electromechanical Performance</i> - Jean-Louis LILIE                             | 30 | 30 | -   | 5 |

|            |   |    |    |   |           |
|------------|---|----|----|---|-----------|
| ELEC0029-1 | <i>Analysis and operation of electric energy systems</i> - Thierry VAN CUTSEM   | 25 | 20 | - | <b>4</b>  |
| ELEC0047-1 | <i>Dynamics of electric energy systems</i> - Thierry VAN CUTSEM   | 30 | 30 | - | <b>5</b>  |
| ELEC0436-1 | <i>Energy Management Systems and optimal functions for electric power systems</i> - Patricia ROUSSEAU   | 30 | 30 | - | <b>5</b>  |
| ELEC0054-1 | <i>Application of Electrical Measuring Systems</i> - Philippe VANDERBEMDEN  | 30 | 30 | - | <b>5</b>  |
| ELEC0041-1 | <i>Modeling and design of electromagnetic systems</i> - Patrick DULAR, Christophe GEUZAINÉ  | 30 | 30 | - | <b>5</b>  |
| ELEN0009-1 | <i>Building Acoustics and Noise Control</i> - Jean-Jacques EMBRECHTS  | 30 | 30 | - | <b>5</b>  |
| ELEN0016-1 | <i>Digital Image Processing</i> - Marc VAN DROOGENBROECK  | 30 | 30 | - | <b>5</b>  |
| ELEN0018-1 | <i>Electroacoustics</i> - Jean-Jacques EMBRECHTS  | 30 | 30 | - | <b>5</b>  |
| ELEN0019-1 | <i>Treatment of the audio signals: principles and experiments</i> - Jean-Jacques EMBRECHTS  | 30 | 30 | - | <b>5</b>  |
| ELEN0035-1 | <i>CAD in (Analogue and Digital) On-Demand Microelectronics</i> - Jacques DESTINÉ   | 30 | 30 | - | <b>5</b>  |
| ELEN0038-1 | <i>Microsystems</i> - Jacques DESTINÉ   | 30 | 30 | - | <b>5</b>  |
| ELEN0442-1 | <i>Introduction to statistical training</i> - Pierre GEURTS, Louis WEHENKEL   | 30 | 30 | - | <b>5</b>  |
| ELEN0062-1 | <i>Applied Inductive Learning</i> - Pierre GEURTS, Louis WEHENKEL   | 30 | 30 | - | <b>5</b>  |
| ELEN0069-1 | <i>Nanoelectronics / Optoelectronics</i> - Benoît VANDERHEYDEN  | 30 | 30 | - | <b>5</b>  |
| ELEN0071-1 | <i>Digital Signal Processing</i> - Jacques VERLY  | 30 | 30 | - | <b>5</b>  |
| ELEN0072-1 | <i>Statistical Signal Processing</i> - Jacques VERLY  | 30 | 30 | - | <b>5</b>  |
| INFO0939-1 | <i>High performance scientific computing (english)</i> - Christophe GEUZAINÉ  | 30 | 30 | - | <b>5</b>  |
| INFO0009-1 | <i>Introduction to Data Bases</i> - Pierre WOLPER   | 30 | 30 | - | <b>5</b>  |
| INFO0010-1 | <i>Introduction to Computer Networks</i> - Guy LEDUC  | 30 | 30 | - | <b>5</b>  |
| INFO0013-1 | <i>Computer vision (english)</i> - Justus PIATER  | 30 | 30 | - | <b>5</b>  |
| INFO0045-2 | <i>Cryptography and Computer Security</i> - N... - Suppl : Tri-An BANH, Renaud DUMONT   | 30 | 30 | - | <b>5</b>  |
| INFO0004-1 | <i>Programming Languages: From Text to Execution (english)</i> - Justus PIATER  | 30 | 30 | - | <b>5</b>  |
| INFO0065-1 | <i>Seminar on Intrusion Systems</i> - Marc DACIER   | 10 | 50 | - | <b>5</b>  |
| MATH0462-1 | <i>Discrete optimization</i> - Quentin LOUVEAUX   | 30 | 30 | - | <b>5</b>  |
| SYST0017-1 | <i>Non linear systems</i> - Rodolphe SEPULCHRE  | 30 | 30 | - | <b>5</b>  |
| GBIO0008-1 | <i>Medical imaging</i> - Christophe PHILLIPS  | 30 | 30 | - | <b>5</b>  |
| GBIO0009-1 | <i>Bio-informatics</i> - Kristel VAN STEEN  | 30 | 30 | - | <b>5</b>  |
| GBIO0010-1 | <i>Bioinstrumentation</i> - Jacques DESTINÉ   | 30 | 30 | - | <b>5</b>  |
| GBIO0011-1 | <i>Biological systems modeling</i> - Pierre DAUBY, Rodolphe SEPULCHRE   | 30 | 30 | - | <b>5</b>  |
| [...]      | Industrial management course (to be chosen among courses on offer at the university : the selection must meet with the approval of the president of the jury) |    |    |   |           |
| ASTG0019-1 | <i>Placement</i> - COLLÉGIALITÉ   | -  | -  | - | <b>10</b> |

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