

#### Cycle view of the study programme

Bl Or Th Pr Au Cr

To complete their curriculum, students must earn or validate the 75 credits of the compulsory courses (including the master thesis and Internship), 30 credits from the professional focus and choose optional courses for 15 credits.

Ideally, students enrolling in the master program should have acquired the skills and knowledge corresponding to the 40 credits in "Energy" offered as part of the bachelor program in engineering.

#### Compulsory courses from the core curriculum (B1 : 30Cr, B2 : 45Cr)

|            |                                                                                                                                                                                 |    |                     |             |                 |     |    |
|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|---------------------|-------------|-----------------|-----|----|
| CHIM0695-2 | <i>Modelling of chemical &amp; energy processes</i> (english language) - Grégoire LÉONARD                                                                                       | B1 | Q1                  | 20          | 32              | -   | 5  |
| ELEC0055-3 | <i>Element of power Electronics</i> (english language)<br>- Part A - Fabrice FREBEL<br>- Part B - Fabrice FREBEL                                                                | B1 | Q1<br>30<br>-       | 6<br>20     | -<br>-          |     | 5  |
| ELEC0447-1 | <i>Analysis of electric power and energy systems</i> (english language) - Bertrand CORNÉLUSSE - [1d FW]                                                                         | B1 | Q1                  | 26          | 26              | [+] | 5  |
| MECA0450-3 | <i>Renewable Energy System Design</i> (english language) - Pierre DEWALLEF - [24h Proj., 1d FW]                                                                                 | B1 | Q1                  | 24          | 12              | [+] | 5  |
| ENRG0001-1 | <i>Energy challenge (including seminars)</i> (english language) - Bertrand CORNÉLUSSE, Pierre DEWALLEF, Samuel GENDEBIEN, Vincent LEMORT, Grégoire LÉONARD - [3d FW, 80h Proj.] | B1 | TA                  | 30          | -               | [+] | 10 |
| CHIM0664-3 | <i>Electrochemical energy conversion and storage</i> (english language)<br>- part 1 - Nathalie JOB<br>- part 2 - Nathalie JOB - [15h Labo.]<br>- part 3 - [3d FW]               | B2 | Q1<br>15<br>-<br>11 | -<br>-<br>7 | -<br>[+]<br>[+] |     | 5  |
| ELEC0018-1 | <i>Energy markets and regulation</i> (english language) - Damien ERNST                                                                                                          | B2 | Q1                  | 39          | 13              | -   | 5  |
| GEST3162-1 | <i>Principles of management</i> (english language) - Michaël PARMENTIER, Willem STANDAERT - [25h Proj.]                                                                         | B2 | Q1                  | 30          | -               | [+] | 5  |
| ATFE9011-1 | <i>Master's thesis and Internship</i> (english language) - Pierre DEWALLEF - [750h Proj.]                                                                                       | B2 | TA                  | -           | -               | [+] | 30 |

#### Optional courses from the core curriculum (B1 : 15Cr)

Choose 15 credits from the following list : (B1 : 15Cr)

[...] Remark : Electives may also be replaced by one or more courses from the undergraduate "energy" option for which competencies would not be acquired. the courses. ELEC0053-2 and SYST0022-1 are corequisite to some compulsory courses of the master program. They must be taken prioritarily, unless they were already taken as part of the bachelor in engineering, or unless the corresponding knowledge and skills have been acquired previously.

|            |                                                                                                                              |    |    |    |    |     |   |
|------------|------------------------------------------------------------------------------------------------------------------------------|----|----|----|----|-----|---|
| ELEC0053-2 | <i>Electric circuits</i> - Bertrand CORNÉLUSSE                                                                               | B1 | Q2 | 26 | 26 | -   | 5 |
| SYST0022-1 | <i>Linear Systems Design</i> (english language) - Guillaume DRION, Pierre SACRÉ - [15h Proj.]                                | B1 | Q2 | 26 | 26 | [+] | 5 |
| MECA0002-1 | <i>Applied Thermodynamics and Introduction to Heat Engines</i> - Vincent LEMORT                                              | B1 | Q1 | 26 | 26 | -   | 5 |
| CHIM9315-1 | <i>Sustainable management of fuels: supply, synthesis and use</i> - Angélique LÉONARD, Grégoire LÉONARD - [1d FW, 10h Proj.] | B1 | Q1 | 50 | -  | [+] | 5 |
| CHIM0009-3 | <i>Applied Chemical Thermodynamics</i> - MarieNoëlle DUMONT, Nathalie JOB, Grégoire LÉONARD                                  | B1 | Q2 | 26 | 26 | -   | 5 |
| GEOL1046-1 | <i>Geothermal energy</i> (english language) - Bertrand FRANÇOIS, Philippe ORBAN - [40h Proj., 1d FW]                         | B1 | Q2 | 18 | 15 | [+] | 5 |
| ENRG0002-1 | <i>Wind Energy</i> (english language) - Thomas ANDRIANNE, Koen HILLEWAERT - [12h Proj.]                                      | B1 | Q2 | 36 | 16 | [+] | 5 |
| ENRG0003-1 | <i>Hydropower</i> (english language) - Sébastien ERPICUM - [20h Proj., 1d FW]                                                | B1 | Q2 | 26 | 26 | [+] | 5 |

|            |                                                                                                                                                                      |    |    |    |    |     |   |
|------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|----|----|-----|---|
| GENU0018-3 | <i>Introduction to Nuclear Engineering and Power Plant Technologies</i> (english language) - Pierre DEWALLEF                                                         | B1 | Q2 | 26 | 26 | -   | 5 |
| GCIV0008-2 | <i>Energy and transport</i> (english language) - Mario COOLS - [25h Proj.]                                                                                           | B1 | Q1 | 30 | 15 | [+] | 5 |
| ARCH3272-1 | <i>Building performance simulation and monitoring</i> (english language)<br>- Part 1 - Shady ATTIA<br>- Part 2 - Shady ATTIA - [70h Proj.]                           | B1 | Q1 | 15 | 15 | -   | 5 |
| ENRG0004-1 | <i>CO2 capture, utilisation and storage</i> (english language) - Motiar RAHAMAN                                                                                      | B1 | Q2 | 26 | 26 | -   | 5 |
| MECA0034-1 | <i>Energy flexibility in buildings</i> (english language) - Vincent LEMORT                                                                                           | B1 | Q1 | 26 | 26 | -   | 5 |
| [...]      | Upon approval by the jury, 5 credits can be chosen among the courses of the two professional foci, from an other programme at ULiège or from the UNIC course catalog |    |    |    |    |     |   |

#### Compulsory courses within the focus (B1 : 15Cr, B2 : 5Cr)

|            |                                                                                                            |    |    |    |    |     |   |
|------------|------------------------------------------------------------------------------------------------------------|----|----|----|----|-----|---|
| MECA0037-1 | <i>Thermal Power Plants and Combined Heat and Power</i> (english language) - Pierre DEWALLEF - [12h Proj.] | B1 | Q2 | 24 | 24 | [+] | 5 |
| MECA0006-1 | <i>Cooling and low-temperature heating systems</i> (english language) - Vincent LEMORT - [4h Proj., 1d FW] | B1 | Q2 | 26 | 26 | [+] | 5 |
| MECA0532-1 | <i>Turbomachines</i> - Koen HILLEWAERT                                                                     | B1 | Q1 | 26 | 26 | -   | 5 |
| ENRG0005-1 | <i>Power-to-fuel systems</i> (english language) - Motiar RAHAMAN                                           | B2 | Q1 | 26 | 26 | -   | 5 |

#### Optional courses within the focus (B2 : 10Cr)

Select 10 credits among: (B2 : 10Cr)

|            |                                                                                                                                                                                                  |    |    |    |    |     |   |
|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|----|----|-----|---|
| MECA0032-1 | <i>Flow in turbomachines</i> (english language) - Koen HILLEWAERT - [60h Proj.]                                                                                                                  | B2 | Q1 | 26 | 26 | [+] | 5 |
| MECA0041-1 | <i>Internal combustion engine</i> (english language)<br>- Part 1 Fundamental aspects - Marc NÉLIS - [1d FW, 15h Proj.]<br>- Part 2 Application to propulsion - Marc NÉLIS - [10h Proj., 0,5d FW] | B2 | Q2 | 15 | 15 | [+] | 5 |
| MECA0527-1 | <i>Electric, hybrid and fuel cell vehicles</i> (english language) - Pierre DUYSINX - [5h Labo., 15h Proj.]                                                                                       | B2 | Q1 | 30 | 10 | [+] | 5 |
| MECA0531-1 | <i>Experimental Evaluation of Components and Processes</i> (english language) - Samuel GENDEBIEN - [12h Labo., 1d FW]                                                                            | B2 | Q1 | 26 | 14 | [+] | 5 |
| ELEC0041-1 | <i>Modelling and design of electromagnetic systems</i> (english language) - Christophe GEUZAINÉ (Odd years)                                                                                      | B2 | Q2 | 26 | 26 | -   | 5 |