

## First Year

### Compulsory courses

#### General Education

CHIM0015-3	<i>Analytical chemistry II, physical methods</i> - Gauthier EPPE	30	60	-	<b>6</b>
ELEC0431-1	<i>Electromagnetic energy transformation</i> - Christophe GEUZAINÉ	30	30	-	<b>5</b>
CHIM0071-3	<i>Reduction of pollutants from combustion</i> - Angélique LÉONARD	30	-	-	<b>3</b>

#### Training in processes

CHIM0040-2	<i>Process design workshop : mass and energy balances</i> - Georges HEYEN	-	60	-	<b>4</b>
SYST0004-2	<i>Modelling of large chemical systems</i> - Georges HEYEN	30	30	-	<b>5</b>
CHIM0081-1	<i>Industrial Chemistry Processes, structure of chemical industry</i> - Angélique LÉONARD - Suppl : Georges HEYEN	30	-	-	<b>3</b>

CHIM0081-2	<i>Industrial Chemistry Processes, processes design</i> - Angélique LÉONARD	15	30	-	<b>3</b>
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#### Chemical engineering training

CHIM0024-1	<i>Applied Physical Chemistry</i> - Cédric GOMMES, JeanPaul PIRARD	30	45	-	<b>6</b>
CHIM0023-2	<i>Chemical Engineering (Reactor Study)</i> - Dominique TOYE	40	45	-	<b>7</b>
CHIM0083-2	<i>Chemical Engineering (Unit Physical Operations and Non-Specific Aspects of Apparatuses)</i> - Michel CRINE	45	45	-	<b>8</b>

#### Training in materials

CHIM0675-1	<i>Macromolecular chemistry</i> - AnneSophie DUWEZ	20	20	-	<b>3</b>
CHIM0676-1	<i>Polymerization processes</i> - Eric MARTIN	20	-	-	<b>2</b>
CHIM0666-2	<i>Inorganic materials : manufacturing procedures and propriety</i> - Stéphanie LAMBERT -30 [2d FW]	30	30	[+]	<b>5</b>

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 the Faculty's programme; this choice must be approved by the President of the cycle's Jury.

### Compulsory courses

CHIM0605-1	<i>Chemistry and inorganic materials</i> - Bénédicte VERTRUYEN	30	30	-	<b>5</b>
CHIM0604-1	<i>Chemistry and organic materials</i> - Lionel DELAUDE	30	60	-	<b>7</b>
CHIM0012-3	<i>Chemical Kinetics</i> - JeanPaul PIRARD	20	15	-	<b>5</b>
CHIM0022-2	<i>Introduction to Chemical Engineering</i> - Michel CRINE	30	30	-	<b>5</b>
PHYS0904-3	<i>Physics of materials (part)</i> - Jacqueline LECOMTEBECKERS - [1d FW]	20	10	[+]	<b>3</b>
CHIM0024-1	<i>Applied Physical Chemistry</i> - Cédric GOMMES, JeanPaul PIRARD	30	45	-	<b>6</b>
CHIM0009-1	<i>Applied chemical thermodynamics</i> - Georges HEYEN	30	30	-	<b>5</b>
ELEC0431-1	<i>Electromagnetic energy transformation</i> - Christophe GEUZAINÉ	30	30	-	<b>5</b>
CHIM0071-3	<i>Reduction of pollutants from combustion</i> - Angélique LÉONARD	30	-	-	<b>3</b>
CHIM0081-1	<i>Industrial Chemistry Processes, structure of chemical industry</i> - Angélique LÉONARD - Suppl : Georges HEYEN	30	-	-	<b>3</b>
CHIM0081-2	<i>Industrial Chemistry Processes, processes design</i> - Angélique LÉONARD	15	30	-	<b>3</b>
CHIM0675-1	<i>Macromolecular chemistry</i> - AnneSophie DUWEZ	20	20	-	<b>3</b>
CHIM0676-1	<i>Polymerization processes</i> - Eric MARTIN	20	-	-	<b>2</b>
CHIM0666-2	<i>Inorganic materials : manufacturing procedures and propriety</i> - Stéphanie LAMBERT -30 [2d FW]	30	30	[+]	<b>5</b>

### Compulsory courses

MATH0002-4	<i>Mathematical Analysis I</i> - Eric DELHEZ	30	25	-	<b>4</b>
DROI0724-1	<i>Law and engineering</i> - Christine BIQUET, Jacques CLESSE, Pascale LECOCQ - Suppl : Daisy CHICHOYAN, Déborah GOL, Bernard VANBRABANT, Cécile VERCHEVAL	30	-	-	<b>3</b>
MECA0011-1	<i>Fluid Mechanics : Basics</i> - Michel PIROTTON	30	30	-	<b>5</b>
CHIM0022-2	<i>Introduction to Chemical Engineering</i> - Michel CRINE	30	30	-	<b>5</b>
MECA0001-1	<i>Mechanics of materials</i> - JeanPierre JASPART	30	30	-	<b>5</b>
PHYS0904-3	<i>Physics of materials (part)</i> - Jacqueline LECOMTEBECKERS - [1d FW]	20	10	[+]	<b>3</b>
CHIM0009-1	<i>Applied chemical thermodynamics</i> - Georges HEYEN	30	30	-	<b>5</b>
CHIM0024-1	<i>Applied Physical Chemistry</i> - Cédric GOMMES, JeanPaul PIRARD	30	45	-	<b>6</b>
ELEC0431-1	<i>Electromagnetic energy transformation</i> - Christophe GEUZAINÉ	30	30	-	<b>5</b>
CHIM0071-3	<i>Reduction of pollutants from combustion</i> - Angélique LÉONARD	30	-	-	<b>3</b>

CHIM0081-1	<i>Industrial Chemistry Processes, structure of chemical industry</i> - Angélique LÉONARD	30	-	-	3
	- Suppl : Georges HEYEN				
CHIM0081-2	<i>Industrial Chemistry Processes, processes design</i> - Angélique LÉONARD	15	30	-	3
CHIM0675-1	<i>Macromolecular chemistry</i> - AnneSophie DUWEZ	20	20	-	3
CHIM0676-1	<i>Polymerization processes</i> - Eric MARTIN	20	-	-	2
CHIM0666-2	<i>Inorganic materials : manufacturing procedures and propriety</i> - Stéphanie LAMBERT	30	30	[+]	5
	[2d FW]				

## Second Year

### Compulsory courses

ATFE0004-1	<i>Final Work (including an introduction to methodology and research)</i> - COLLÉGIALITÉ	-	-	-	25
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### 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

### Compulsory courses

ATFE0004-1	<i>Final Work (including an introduction to methodology and research)</i> - COLLÉGIALITÉ	-	-	-	25
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### Optional courses

Choose one of the following courses :

[...] the short list below.

LANG1957-1	<i>Dutch Engineering</i> (dutch language) - Claudine COLIN	60	-	-	5
LANG1958-1	<i>German Engineering</i> (german language) - Françoise CARL	60	-	-	5

[...] University of Liege programme courses

In any case, this course must have the approval of the cycle's Jury President.

### Compulsory courses

ATFE0004-1	<i>Final Work (including an introduction to methodology and research)</i> - COLLÉGIALITÉ	-	-	-	25
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### 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

### Compulsory courses

CHIM0040-2	<i>Process design workshop : mass and energy balances</i> - Georges HEYEN	-	60	-	4
SYST0004-2	<i>Modelling of large chemical systems</i> - Georges HEYEN	30	30	-	5
CHIM0015-3	<i>Analytical chemistry II, physical methods</i> - Gauthier EPPE	30	60	-	6
CHIM0023-2	<i>Chemical Engineering (Reactor Study)</i> - Dominique TOYE	40	45	-	7
CHIM0083-2	<i>Chemical Engineering (Unit Physical Operations and Non-Specific Aspects of Apparatuses)</i> - Michel CRINE	45	45	-	8

### Compulsory courses

CHIM0040-2	<i>Process design workshop : mass and energy balances</i> - Georges HEYEN	-	60	-	4
SYST0004-2	<i>Modelling of large chemical systems</i> - Georges HEYEN	30	30	-	5
CHIM0023-2	<i>Chemical Engineering (Reactor Study)</i> - Dominique TOYE	40	45	-	7
CHIM0083-2	<i>Chemical Engineering (Unit Physical Operations and Non-Specific Aspects of Apparatuses)</i> - Michel CRINE	45	45	-	8

### Optional courses

[...] A course to be chosen from the 2nd year of the regular masters programme

### Optional courses

**Choose one option from the following :**

#### Option Chemical Engineering

Choose optional courses from the following, including two complete modules, totaling 30 credits, with the approval of the President of the cycle's Jury, one of the optional courses may be chosen in another programme of the ULg.

**Choose two modules from :**

**Sustainable development : energy and environment**

CHIM0056-2	<i>Energy Aspects of Physical Unit Operations</i> - Michel CRINE	15	-	-	2
CHIM0664-1	<i>Combustible batteries and micro-batteries</i> - Nathalie JOB	15	15	-	3
CHIM0039-1	<i>Chemical Upgrading of Coal</i> - JeanPaul PIRARD	15	-	-	2
CHIM0011-2	<i>Environment Chemical Engineering</i> - Michel CRINE	15	15	-	3

**Biotechnology**

CHIM0059-1	<i>Industrial Microbiology</i> - Philippe THONART	15	-	-	2
CHIM0667-1	<i>Transport phenomena in complex media</i> - Dominique TOYE	18	24	-	4
CHIM0063-1	<i>General principles of biology and biochemistry</i> - Paulette CHARLIER	15	-	-	2
CHIM0067-1	<i>Biochemical Reactors II</i> - Michel CRINE	15	-	-	2

**Procedures**

CHIM0054-2	<i>Process design workshop : economic optimization</i> - Georges HEYEN	10	45	-	4
SYST0011-2	<i>Dynamics and control of chemical systems</i> - Georges HEYEN	20	15	-	3
CHIM0074-2	<i>Seminars on industrial security</i> - Georges HEYEN, Angélique LÉONARD, Dominique TOYE - [10h SEM, 2d FW]	-	-	[+]	2

**Chemistry (synthetic products) and formulas**

CHIM0668-1	<i>Stirring and mixing</i> - Dominique TOYE	15	15	-	3
CHIM0055-1	<i>Chemical Engineering of Polyphase Systems</i> - N... - Suppl : JeanMarc SCHWEITZER	18	24	-	4
CHIM0669-1	<i>Particular systems</i> - Michel CRINE	15	15	-	3

**Materials Science**

CHIM0064-1	<i>Aerospace materials and composite materials</i> - Philippe MARTIN	20	-	-	2
CHIM0072-1	<i>Engineering of nanomaterials and divided materials</i> - Benoît HEINRICHS, Stéphanie LAMBERT	15	15	-	3
PHYS0038-1	<i>Physics of polymer materials, including plasturgy</i> - N... - Suppl : Eric MARTIN	20	20	-	4
[...]	Choose additional courses from the above modules or from the list below, to reach 30 credits				

**List of courses from "research" group**

ASTG0022-1	<i>20 days of industrial internship, subjected to valuation</i> - N... - [20d Internship]	-	-	[+]	4
ASTG0023-1	<i>40 days of industrial internship, subjected to valuation</i> - N... - [40d Internship]	-	-	[+]	8
GEOL0281-3	<i>Environmental aspects of industrial and mining activities</i> - Stoyan GAYDARDZHIEV - [1,5d FW]	25	25	[+]	4

**Option Materials**

Choose optional courses from the following, including two complete modules, totaling 30 credits, with the approval of the President of the cycle's Jury, one of the optional courses may be chosen in another programme of the ULg.

**Choose two modules from :**

**Materials Science**

CHIM0064-1	<i>Aerospace materials and composite materials</i> - Philippe MARTIN	20	-	-	2
CHIM0072-1	<i>Engineering of nanomaterials and divided materials</i> - Benoît HEINRICHS, Stéphanie LAMBERT	15	15	-	3
PHYS0038-1	<i>Physics of polymer materials, including plasturgy</i> - N... - Suppl : Eric MARTIN	20	20	-	4

**Metallic substances**

MECA0473-1	<i>Metallic materials Engineering</i> - Jacqueline LECOMTEBECKERS	30	30	-	5
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MECA0462-2 *Materials selection* (english language) - Jacqueline LECOMTEBECKERS - [1d FW] 30 30 [+] 5

**Manufacturing and recycling of materials**

GEOL0276-4 *Solid waste processing* - Stoyan GAYDARDZHIEV - [1,5d FW] 20 20 [+] 4

MECA0139-1 *Rapid Prototyping* - Thierry DORMAL 30 - - 3

**Organising the materials**

Prerequisite MECA0036-1 Méthode des éléments finis

MECA0464-1 *Large deformation of solids* (english language) - JeanPhilippe PONTHOT 30 30 - 5

MECA0023-1 *Inelastic behavior of solids* - JeanPhilippe PONTHOT 30 30 - 5

**Characterisation of materials**

MATH0049-1 *Morphological Characterization of Unordered Systems* - Silvia BLACHER 30 30 - 5

BIOL0114-3 *Electronic microscopies* - Philippe COMPÈRE 45 15 - 5

[...] Choose additional courses from the modules or list below to reach 30 ECTS

**List of courses out of Modules**

ASTG0022-1 *20 days of industrial internship, subjected to valuation* - N... - [20d Internship] - - [+] 4

ASTG0023-1 *40 days of industrial internship, subjected to valuation* - N... - [40d Internship] - - [+] 4