Two-Year Master Program (120 ECTS)

First Year

Compulsory courses

General Education

CHIM0015-3	*Analytical chemistry II, physical methods* - Gauthier EPPE	30	60	-	**6**
ELEC0431-1	*Electromagnetic energy transformation* - Christophe GEUZAINE	30	30	-	**5**
CHIM0071-3	*Reduction of pollutants from combustion* - Angélique LÉONARD	30	-	-	**3**

Training in processes

CHIM0040-2	*Process design workshop : mass and energy balances* - Georges HEYEN	-	60	-	**4**
SYST0004-2	*Modelling of large chemical systems* - Georges HEYEN	30	30	-	**5**
CHIM0081-1	*Industrial Chemistry Processes, structure of chemical industry* - Angélique LÉONARD	30	-	-	**3**
CHIM0081-2	*Industrial Chemistry Processes, processes design* - Angélique LÉONARD	15	30	-	**3**

Chemical engineering training

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

Training in materials

CHIM0675-1	*Macromolecular chemistry* - Anne-Sophie DUWEZ	20	20	-	**3**
CHIM0676-1	*Polymerization processes* - - Suppl : Eric MARTIN	20	-	-	**2**
CHIM0666-2	*Inorganic materials : manufacturing procedures and propriety* - Stéphanie LAMBERT - [2d FW]	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 the Faculty's programme; this choice must be approved by the President of the cycle's Jury.

Second year

Compulsory courses

ATFE0004-1	*Final Work (including an introduction to methodology and research)* - COLLÉGIALITÉ	-	-	-	**25**

Optional courses

Choose one of the following courses :

[...]	the short list below.				
LANG1957-1	*Dutch Engineering* (dutch language) - Claudine COLIN	60	-	-	**5**
LANG1958-1	*German Engineering* (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.

Choose one of the following focus :

Research Focus

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	*Energy Aspects of Physical Unit Operations* - Michel CRINE	15	-	-	**2**
CHIM0664-1	*Combustible batteries and micro-batteries* - Nathalie JOB	15	15	-	**3**
CHIM0039-1	*Chemical Upgrading of Coal* - Jean-Paul PIRARD	15	-	-	**2**
CHIM0011-2	*Environment Chemical Engineering* - Michel CRINE	15	15	-	**3**

Biotechnology

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

Procedures

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

Chemistry (synthetic products) and formulas

CHIM0668-1	*Stirring and mixing* - Dominique TOYE	15	15	-	**3**
CHIM0055-1	*Chemical Engineering of Polyphase Systems* - Pierre MARCHOT	18	24	-	**4**
CHIM0669-1	*Particular systems* - Michel CRINE	15	15	-	**3**

Materials Science

CHIM0064-1	*Aerospace materials and composite materials* - Yann BOURGEOIS, N...	20	-	-	**2**
CHIM0072-1	*Engineering of nanomaterials and divided materials* - Benoît HEINRICHS	15	15	-	**3**
PHYS0038-1	*Physics of polymer materials, including plasturgy* - Eric MARTIN, N...	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	*20 days of industrial internship, subjected to valuation* - COLLÉGIALITÉ - [20d Internship]	-	-	[+]	**4**
ASTG0023-1	*40 days of industrial internship, subjected to valuation* - COLLÉGIALITÉ - [40d Internship]	-	-	[+]	**8**
GEOL0281-3	*Environmental aspects of industrial and mining activities* - 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	*Aerospace materials and composite materials* - Yann BOURGEOIS, N...	20	-	-	**2**
CHIM0072-1	*Engineering of nanomaterials and divided materials* - Benoît HEINRICHS	15	15	-	**3**
PHYS0038-1	*Physics of polymer materials, including plasturgy* - Eric MARTIN, N...	20	20	-	**4**

Metallic substances

MECA0473-1	*Metallic materials Engineering* - Jacqueline LECOMTE#BECKERS	30	30	-	**5**
MECA0462-2	*Materials selection* - Jacqueline LECOMTE#BECKERS - [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* - Jean-Philippe PONTHOT	30	30	-	**5**
MECA0023-1	*Inelastic behavior of solids* - Jean-Philippe 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* - COLLÉGIALITÉ - [20d Internship]	-	-	[+]	**4**
ASTG0023-1	*40 days of industrial internship, subjected to valuation* - COLLÉGIALITÉ - [40d Internship]	-	-	[+]	**4**

Professional focus in management

Compulsory courses

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

Optional courses

Choose one of the following courses :

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

Adjusted programme for student of the Bachelors in Civil Engineering who have not taken the "Chemistry and Material Sciences" option

First Year

Compulsory courses

CHIM0605-1	*Chemistry and inorganic materials* - Rudi CLOOTS	30	30	-	**5**
CHIM0604-1	*Chemistry and organic materials* - Christophe DETREMBLEUR	30	60	-	**7**
CHIM0012-2	*Chemical Kinetics* - Jean-Paul PIRARD	30	30	-	**5**
CHIM0022-2	*Introduction to Chemical Engineering* - Michel CRINE	30	30	-	**5**
PHYS0904-3	*Physics of materials (part)* - Jacqueline LECOMTE#BECKERS - [1d FW]	20	10	[+]	**3**
CHIM0024-1	*Applied Physical Chemistry* - Cédric GOMMES, Jean-Paul PIRARD	30	45	-	**6**
CHIM0009-1	*Applied chemical thermodynamics* - Georges HEYEN	30	30	-	**5**
ELEC0431-1	*Electromagnetic energy transformation* - Christophe GEUZAINE	30	30	-	**5**
CHIM0071-3	*Reduction of pollutants from combustion* - Angélique LÉONARD	30	-	-	**3**
CHIM0081-1	*Industrial Chemistry Processes, structure of chemical industry* - Angélique LÉONARD	30	-	-	**3**
CHIM0081-2	*Industrial Chemistry Processes, processes design* - Angélique LÉONARD	15	30	-	**3**
CHIM0675-1	*Macromolecular chemistry* - Anne-Sophie DUWEZ	20	20	-	**3**
CHIM0676-1	*Polymerization processes* - - Suppl : Eric MARTIN	20	-	-	**2**

CHIM0666-2	*Inorganic materials : manufacturing procedures and propriety* - Stéphanie LAMBERT - [2d FW]	30	30	[+]	**5**

Second year

Compulsory courses

ATFE0004-1	*Final Work (including an introduction to methodology and research)* - 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

Research Focus

Compulsory courses

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

Adjusted programme for bachelors in Chemical Sciences

This programme is defined in relation with the Bachelor in chemistry organised by the University of Liège's Faculty of Sciences. It is likely to be greatly modified for students with a Bachelor in chemistry sciences from other institutions, depending on the knowledge, and courses not followed, whilst remaining within the limits of 75+60 ECTS.

First Year

Compulsory courses

MATH0002-4	*Mathematical Analysis I* - Eric DELHEZ	30	25	-	**4**
DROI0724-1	*Law and engineering* - Christine BIQUET, Jacques CLESSE, Pascale LECOCQ - Suppl : Daisy CHICHOYAN, Déborah GOL, Bernard VANBRABANT, Cécile VERCHEVAL	30	-	-	**3**
MECA0011-1	*Fluid Mechanics : Basics* - Michel PIROTTON	30	30	-	**5**
CHIM0022-2	*Introduction to Chemical Engineering* - Michel CRINE	30	30	-	**5**
MECA0001-1	*Solid mechanics* - Serge CESCOTTO - Suppl : Anne HABRAKEN	30	30	-	**5**
PHYS0904-3	*Physics of materials (part)* - Jacqueline LECOMTE#BECKERS - [1d FW]	20	10	[+]	**3**
CHIM0009-1	*Applied chemical thermodynamics* - Georges HEYEN	30	30	-	**5**
CHIM0024-1	*Applied Physical Chemistry* - Cédric GOMMES, Jean-Paul PIRARD	30	45	-	**6**
ELEC0431-1	*Electromagnetic energy transformation* - Christophe GEUZAINE	30	30	-	**5**
CHIM0071-3	*Reduction of pollutants from combustion* - Angélique LÉONARD	30	-	-	**3**
CHIM0081-1	*Industrial Chemistry Processes, structure of chemical industry* - Angélique LÉONARD	30	-	-	**3**
CHIM0081-2	*Industrial Chemistry Processes, processes design* - Angélique LÉONARD	15	30	-	**3**
CHIM0675-1	*Macromolecular chemistry* - Anne-Sophie DUWEZ	20	20	-	**3**
CHIM0676-1	*Polymerization processes* - - Suppl : Eric MARTIN	20	-	-	**2**
CHIM0666-2	*Inorganic materials : manufacturing procedures and propriety* - Stéphanie LAMBERT - [2d FW]	30	30	[+]	**5**

Second year

Compulsory courses

ATFE0004-1	*Final Work (including an introduction to methodology and research)* - 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

Research Focus

Compulsory courses

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

Optional courses

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