Faculty of Applied Sciences

FSA 1BA	Baccalauréat en sciences de l'ingénieur, orientation ingénieur civil (Bachelor of Engineering Sciences,)

Study objectives

General objectives

The bachelor's programme in Engineering Sciences : Engineering, leads to the degree of "Bachelor of Engineering Sciences : Engineering" of the French-speaking Community of Belgium. Upon successful completion of this first cycle of studies, the student will have access to one or several titles in Engineering Sciences, awarded by the Faculty of Applied Sciences, by doing one of the corresponding master's programmes.

The general objectives of the bachelor's programme in Engineering Sciences are, therefore, aimed at the acquisition of :

- lasting scientific knowledge : a solid grounding in the sciences as well as the practice and integration of previously acquired knowledge
- a solid basis in specialised studies, entitling access to a master's (either at UCL, within the French-speaking Community or abroad) : progressive orientation, one or two specialisations in Engineering Sciences
- high level competence and skills : analysis, critical spirit, self-evaluation, conception (of models, tools, systems, processes and procedures), sound written and oral communication skills and professional team-work qualities. The programme is designed to integrate the necessary skills within a pluridisciplinary context (including the Human Sciences, Ethics, the Environment and Sustainable Development).

Objectives of the foundation studies in the Sciences

The foundation studies in the Sciences aim to equip the students with a certain number of special relative skills, namely:

- with the basics in Mathematics especially in Algebra, Analysis and Applied Mathematics : on the one hand, this entails ensuring that the student acquires the mastery of an ensemble of mathematical tools necessary for undertaking studies in other subjects linked to Engineering Sciences ; on the other hand, and of equal importance, is the objective of training the student in the reasoning, abstraction and critical analysis of the results from their calculations
- in Physics to learn and be able to understand the diffent facets of the phenomena which govern the real world, with a view to using them, modelling them and manipulating them in connection with technological applications
- in Chemistry and Physical-Chemistry to learn and be able to understand the basic concepts, such as atoms, molecules and chemical reactions, as well as the concepts governing the equilibrium and disequilibrium of Chemical reactions, i.e. the first and second principles of Thermodynamics and the basics of Kinetic Chemistry
- in Computer Studies to critically analyse a given problem, to present one or several alternative solutions to a given problem, to detail the links which exist between concepts and to apply quality criteria to evaluate a given piece of work and its results
- in Numerical Methods to be able to solve problems in physics and mathematics where the analytical solution is not available or is difficult to obtain, and thus develop and acquire a scientific methodology for numerical methods, including the stages that necessitate application of the tools.
- in Probability and Statistics to apply the basic concepts of probability and statistical interference in a variety of situations : to extract the pertinent information from data bases, to adopt a methodological approach in organising experiments and to develop simple probability or empirical models
- in Design to enable the student to draft manual "conception designs" which will subsequently be converted into "communication designs" by means of recourse to computer-assisted designs
- in Human Sciences from a reflective angle and an operational angle, namely initiation in philosophical reasoning and in the comprehension of the place of the sciences and current engineering techniques
- in Economics to enable the student i) to acquire the basic concepts of economics, through a rational and partially formalised presentation on the basic evolutions of this discipline and ii) to be able to use the principal operating tools applied, for example, in companies
- in learning languages, especially with a view to understanding texts with scientific references and techniques, including both written and listening comprehension in English . The objective is that after the 3 years of bachelor studies, the student should have acquired a sufficient level of reading and listening comprehension in English to be able to write a lengthy report in the language and then present it and defend it orally during a technical discussion
- in the work and management of a project in the context of learning through problems, with a view to integrating the

knowledge and skills acquired or still to be acquired. The objectives aimed at are threefold : to become initiated in the creation of a product, thus apprehending one of the important aspects of the engineering profession ; to become familiar with working in a team and with the methodological aspects of project work (report-writing, presentation before a jury, etc.); to contextualise and put into practice the course content covered and the notions worked in the disciplines during the year.

Details of the competence and skills to be attained through these disciplines are accessible by clicking on the corresponding link.

Objectives of the specialised studies

The specialised studies in the context of the major aim to help the student to acquire the basic concepts in the subject area concerned and to entitle him to unconditional access, without any need for complementary studies, to the corresponding master's programme. The subject areas offered are listed below. Their specific study objectives and details of the skills to be acquired are accessible by clicking on the corresponding course title :

• Applied Chemistry and Physics
• Construction,
• Electricity
• Computer Studies
• Applied Mathematics
• Mechanics

Objectives of the basic training in methodology

The training in methodology aims to help the student to acquire the ensemble of capacities, skills and generic attitudes (i.e. the transversal skills linking the different subjects) deemed necessary for succeeding in the studies of Engineering Studies and for undertaking a professional career. This training in methodology is defined on the basis of a list of operational objectives to be developed during the bachelor's programme such as :

• Data-processing
• Communication
• Reasoning
• Creativity
• Self-evaluation
• Personal motivation and commitment
• Cooperative work in groups
• Quality of individual work
• Problem-solving
• Behaviour
• ...

and is carried out in the context of one or several course subjects and projects

Launching week "S0"

So as to prepare the student adequately for the study objectives in methodology from the outset of the programme, the first week of the first year of the bachelor's programme is a launching week, referred to as "SO," which is organised in a special way. The objectives pursued during this week are :

- General Objectives
• Student Welcome to the Faculty
• Discovery of the Faculty environment and the Louvain-la-Neuve campus
• Methodological initiation into certain aspects of studying at university
- Individual course objectives
• The course activity offered must enable the student to exploit supposedly familiar notions, all the while re-working these in new contexts. It must enable the student to gather methodological knowledge on a parallel with working on the integration, deepening and enrichening of what has been acquired.
- Methodological objectives
• Initiation in cooperative group work
• Initiation in study management
• Initiation in communication

General presentation of the programme

The bachelor's programme in Engineering Sciences : Engineering, totals 180 credits spread over 3 years. The student will choose one of the six majors on offer (150 credits). Each major comprises a general, common, polyvalent course of 107 credits and a specialised course of 43 credits. There is a range of six specialisations to choose from : Applied Chemistry and Physics, Construction, Electricity, Computer Studies, Applied Mathematics and Mechanics. The student will complete his programme with a minor from a course in Polytechnics, or an opening minor, or an ensemble of options for 30 credits.

The student who opts for a minor in specialised Polytechnics, will choose it in an orientation which is different from the major. The courses which will already have been taken into account in the major will have to be replaced by other options to attain the 30 credits. The aim of this major/minor in Polytechnics is to enable the student, if he so wishes, to acquire a basic training in

two specialities in Engineering Sciences, thus increasing his technical polyvalence, or to prepare for a master's in Engineering Sciences situated mid-way between the basic orientations at the bachelor's level. It is the case, for example, with the major/minor association in "Electricity - Mechanics " or " Mechanics - Electricity" which constitutes the normal access path to the master's in Electromechanics and likewise via the combination" Electricity- Applied Chemistry and Physics " which paves the way for the domain of the Nanotechnologies.

The minors in Polytechnics organised by the FSA for the bachelor's of Engineering Sciences are as follows : Applied Chemistry and Physics, Construction, Electricity, Computer Studies, Applied Mathematics, Mechanics, Biomedical engineering and Architecture. The first six are described below. Contrary to the other minors organised at UCL, the dividing up of the work volumes for the minors in Polytechnics are equivalent to around 10 credits in the second year and around 20 credits in the third year, instead of 15 and then 15 credits respectively.

Minors or available options

Six majors and seven minors are offered in the following domains : Applied Chemistry and Physics, Construction, Electricity, Computing Science, Applied Mathematics, Mechanics and Biomedical Engineering (only offered as a minor). The choice of the major and the minor is made at the end of the Ist quadrimester of the 2nd year of the bachelor's programme. This major/minor system enables the student who so wishes to get a basic grounding in two specialities and thus optimise his preparation for a master's situated somewhere in between his current specialisations (eg. in the domain of Nanotechnologies which are situated between Applied Chemistry and Physics and Electricity). The student may also choose a minor organised outside the FSA or a coherent ensemble of options.

Evaluation

The course activities are evaluated in accordance with the prevailing rules of the University (c.f. exam regulations).

In the context of the projects and certain other subject activities, the student will be closely followed in his studies throughout the whole process, in an effort to situate himself appropriately with respect to his individual work and group work and make any necessary readjustments. On the other hand, he will be evaluated during the course of the quadrimester (ongoing evaluation) and again at the end of the quadrimester for each of the subjects taken, to ascertain whether he fulfils the demands of the programme and has completed the modules concerned successfully. These evaluations are both written and oral. The specific details and procedures for the ongoing evaluation are explained at the beginning of each period of the study programme

Admission to the programme

The conditions and regular admission requirements are specified on the web page :
http://www.ucl.ac.be/etudes/libres/en/acces.html

Special admission conditions

Admission to the bachelor's programme in Engineering Sciences : Engineering is subject to passing a special entrance exam. This is a legally required condition throughout the French-speaking Community. This exam is organised in each of the 4 faculties of Applied Sciences within the French-speaking Community and it entitles access to any of these 4 faculties, irrespective of where it was taken. It comprises a section in mathematics and a general section. The mathematical section is comprises analysis, algebra, trigonometry, numerical calculations, geometry and analytical geometry. The general section consists of written and oral tasks in French, Physics, Chemistry, Biology, Geography, History and a second language chosen by the student from among Dutch, English, German or Latin.Those students who satisfy the general access conditions for the programme of the first cycle are exempt from the subjects other than Mathematics. Details of the programme subjects, as well as the conditions for dispensation from oral testing on "non-mathematical" subjects, can be obtained on request at the reception of the Faculty. The mathematical section helps to evaluate the assimilation of the six-hour a week programme during the previous two years of secondary school. Success in this exam usually necessitates reinforcement in maths studies during the last year of secondary school.

Besides its legal aspect, the entrance exam enables the student to evaluate the knowledge acquired from his studies at secondary school. Preparation thereof is often the starting point for reflection on the choice of studies and on the effort needed to undertake the studies envisaged. Complementary information on this exam can be obtained under the heading"Admission" at the Faculty of Applied Sciences, ULC, web-site : (http://www.fsa.ucl.ac.be) or via the email address : admission@fsa.ucl.ac.be.

Admission requirements, special rules

Enrolments for the entrance exam are accepted from the Information Day for secondary school leavers, in March, up until 1st June.

Positioning of the programme

Access to the master's of Engineering Sciences - Engineering

The bachelor's programme in Engineering entitles direct access to the master's programme in Engineering, in the orientation corresponding to the major followed. In most cases, access to the master's of Engineering, in the orientation corresponding to the minor in Polytechnics, is also direct and without the need for any prerequisites.

After having accumulated 120 credits spread over 2 years, the student will obtain the title of Master of Engineering Sciences, which is conferred jointly with the professional title of Engineer.

UCL offers eight different orientations for theses studies : - Engineer in Chemistry and Material Sciences - Engineer in Physics - Engineer in Electricity - Engineer in Electro-mechanics - Engineer in Mechanics - Engineer in Computing - Engineer in Applied Mathematics - Civil Engineer.

International Mobility

Mobility in the Faculty of Applied Sciences is equally a major attraction in the context of these studies. This usually takes place during the 4th or 5th year, i.e. during the master's studies. The students are therefore strongly encouraged to do everything possible to widen their communication skills and their knowledge of languages.

In fact, after being awarded the degree title " Bachelor in Engineering Sciences : Engineering " by UCL, the student will also have access to the existing master's (i.e. from the 4th and 5th years on) within the CLUSTER network - Consortium Linking Universities of Science and Technology for Education and Research, of which the Faculty is a member. Furthermore, UCL students benefit from the same access conditions as the bachelor students from these institutions. This European network groups together : UPC - Barcelona / TU-Darmstadt / TU-Eindhoven / INPG-Grenoble / Uni-Karlsruhe / EPFL-Lausanne / Imperial College London / KTH-Stockholm / Politecnico di Torino / UCL-FSA-Louvain-la-Neuve.

In the context of the master's studies in Engineering Sciences at UCL, the student is also entitled access to the ensemble of the Erasmus/Socrates exchange programmes which UCL has subscribed to together with universities from numerous European or extra-European countries, as well as the Catholic University of Leuven (KUL).

Useful contacts

FSA Faculté des sciences appliquées
Programme management
Faculty of Applied Sciences
Secretary's office for the 1st study cycle : Fr. Malcorps
Address : Rue Archimède 1 - 1348 Louvain-la-Neuve
Tel: 010 47 24 63
Fax: 010 47 24 66
BAC@fsa.ucl.ac.be
Study Advisor
Ch. Trullemans, tél: 010 47 25 67
ctrullemans@dice.ucl.ac.be
Exam Jury
President: P. Sobieski
Jury secretary: V. Wertz
Coordinators for the first quadrimesters
First year :
Coordinator B1-Q1 : B. Raucent - tel. 010 47 25 08 - e-mail : raucent@prm.ucl.ac.be
Coordinator B1-Q2 : P. Sobieski - tel. 010 47 23 03 - e-mail : sobieski@tele.ucl.ac.be
Second year :
Coordinator B2-Q1 : V. Legat - tél. 010 47 23 59 - e-mail : vl@mema.ucl.ac.be
Pedagogical advisors
- For Mathematics :
K. Ben-Naoum - e-mail : benaoum@auto.ucl.ac.be
- General pedagogy :
M-N. de Theux - e-mail : detheux@fsa.ucl.ac.be
- Coordinators B2, Q2 et B3 :
Major in Electricity : F. Labrique - e-mail : labrique@lei.ucl.ac.be
Major in Mechanics : F. Dupret - e-mail : fd@mema.ucl.ac.be
Major in Construction : J.F. Thimus - e-mail : thimus@gce.ucl.ac.be
Major in Applied Chemistry and Physics : A. Jonas - e-mail : jonas@poly.ucl.ac.be
Major in Computing Science: P. Dupont - e-mail : pdupont@info.ucl.ac.be
Major in Applied Mathematics : G. Bastin - e-mail : bastin@auto.ucl.ac.be

List of accessible minors

- Minor in Theology
- Minor in Philosophy
- Minor in Law
- Minor in Criminology
- Minor in Information and Communication (*)
- Minor in Political Sciences
- Minor in Sociology and Anthropology
- Minor in Human and Social Sciences
- Minor in Economics

- •   Minor in Business Studies
- •   Minor in Linguistics
- •   Minor in Hispanic Studies (*)
- •   Minor in Italian Studies (*)
- •   Minor in French Studies (*)
- •   Minor in Latin Studies
- •   Minor in Greek Studies
- •   Minor in Oriental Studies
- •   Minor in Literature Studies
- •   Minor in History
- •   Minor in Medieval Studies
- •   Minor in History of Art and Archaeology(*)
- •   Minor in Musicology
- •   Minor in Psychology and Education (*)
- •   Minor in Human Nutrition
- •   Minor in General Biomedical Sciences
- •   Minor in Clinical Biomedical Sciences
- •   Minor in Medication Sciences (*)
- •   Minor in Physical Activity, Health and Culture of Mouvement (*)
- •   Minor in Mathematics
- •   Minor in Physics
- •   Minor in Geography
- •   Minor in Statistics
- •   Minor in Engineering Sciences : Applied Chemistry and Physics
- •   Minor in Engineering Sciences : Construction
- •   Minor in Engineering Sciences : Electricity
- •   Minor in Engineering Sciences : Computing Science
- •   Minor in Engineering Sciences : Applied Mathematics
- •   Minor in Engineering Sciences : Mechanics
- •   Minor in Urban Architecture
- •   Minor in Bio-engineering
- •   Minor in Biomedical Engineering
- •   Minor in Gender Studies
- •   Minor in Culture and Creation
- •   Minor in European Studies

(*) Minor with access criteria.

Content of programme

General and polyvalent studies common to all the majors (107 credits)

The table summarising the presentation of the general and polyvalent training programme for the ensemble of the bachelor studies divided up per year and per quadrimester is available on the web-page : http://www.fsa.ucl.ac.be/bac/adef/formation_generale.html .

FSA 11BA   First year of studies

First quadrimester

FSAB1101	Mathematics 1[30h+30h] (6 credits)1q (in French)	Philippe Delsarte, Michel Verleysen, Vincent Wertz (coord.)
FSAB1201	Physics 1[30h+30h] (6 credits)1q (in French)	Guy Campion (coord.), Jan Govaerts, Jean-Didier Legat, Charles Trullemans
FSAB1401	Informatique 1[30h+30h] (6 credits)1q (in French)	Olivier Bonaventure, Charles Pecheur (coord.)
FSAB1501	project 1[0h+60h] (6 credits)1q (in French)	Charles Pecheur, Benoît Raucent (coord.), Charles Trullemans, Vincent Wertz
FSAB1601	Engineering drawing[15h+15h] (3 credits)1q (in French)	David Johnson, Benoît Raucent
FSAB1801	Critical History of Science and Technology[15h+15h] (2 credits)1q (in French)	Patricia De Grave, Jacques Riche, David Vanderburgh

Second quadrimester

FSAB1102	Mathematics 2[45h+45h] (9 credits)2q (in French)	Camille Debiève, François Glineur, Enrico Vitale (coord.)
FSAB1202	Physics 2[30h+30h] (6 credits)2q (in French)	Guy Campion, Jean-Claude Samin, Piotr

		Sobieski (coord.)
FSAB1301	Chemistry 1[30h+30h] (6 credits)2q (in French)	Pierre Godard (coord.), Roger Legras
FSAB1502	Project 2[0h+60h] (5 credits)2q (in French)	Anne-Marie Anckaert (coord.), Piotr Sobieski
FSAB1802	Philosophy. Introductory Course[15h+15h] (3 credits)2q (in French)	Jean-Michel Counet, Nicolas Monseu (supplée Jean-Michel Counet)
ANGL1871	English : reading comprehension of scientific texts[20h] (2 credits)	N.

For the English course, a dispensatory test is organised in the first quadrimester of the first year (Test1 - Reading Comprehension). If the student passes, he is exempt from doing the corresponding study sessions : he will either take the ANGL1871 exam at the end of the year (2 credits), or he will choose to follow the ANGL1872 course from the first year on (in the 2nd year - 2 credits) or another advanced language course for a minimum of 2 credits in accordance with his competence.

FSA 12BA   Second year of studies

First quadrimester

FSAB1103	Mathematics 3[30h+30h] (5 credits)1q (in French)	Vincent Blondel (coord.), Philippe Delsarte, Jean-François Remacle, Grégoire Winckelmans
FSAB1104	Numerical methods[30h+30h] (5 credits)1q (in French)	Vincent Legat (coord.), Grégoire Winckelmans
FSAB1203	PHYSICS 3[30h+30h] (5 credits)1q (in French)	Alain Jonas (coord.), Jean-Pierre Raskin, Jean-Claude Samin, Piotr Sobieski, Piotr Sobieski (supplée Alain Jonas)
FSAB1302	Chemistry 2[30h+30h] (5 credits)1q (in French)	Christian Bailly, Francis Delannay (coord.), Hervé Jeanmart
FSAB1402	Informatique 2[30h+30h] (5 credits)1q (in French)	Pierre Dupont, Peter Van Roy (coord.)
FSAB1503	Project 3[0h+60h] (5 credits)1q (in French)	Patrick Bertrand (coord.), Francis Delannay, Jacques Devaux, Vincent Legat

Second quadrimester

FSAB1105	Probability and statistics[30h+30h] (5 credits)2q (in French)	Bernadette Govaerts, Rainer von Sachs
FSAB1803	Economy of the firm[30h+30h] (3 credits)2q (in French)	Jean-Pierre Hansen (coord.), Yves Smeers
ANGL1872	English: Listening Comprehension[20h] (2 credits)2q	Isabelle Druant, Dominique François, Marie-Aude Lefer, Henri November, Marc Piwnik

As from the second quadrimester of the second year, the student will follow the specialisation course corresponding to the major and the minor he has chosen.

For the English course in the second year, the student will take a dispensatory test in the first quadrimester (Test 2 - Listening Comprehension). If the student passes, he is exempt from doing the corresponding study sessions : he will either take the ANGL1872 exam at the end of the second year (2 credits), or he will choose to follow the ANGL1873 course from the second year on (in the 3rd year - 2 credits) or another advanced language course for a minimum of 2 credits in accordance with his competence.

FSA 13BA   Third year of studies

First quadrimester

FSAB1106	Applied mathematics : Signals and systems[30h+30h] (5 credits)1q (in French)	Luc Vandendorpe, Vincent Wertz (coord.)

Second quadrimester

ANGL1873	English communication skills for engineers[20h] (2 credits)1q	N.

In the third year, the student will follow the specialisation course corresponding to the major and the minor he has chosen.For the language course, he will take a dispensatory test in the first quadrimester (Test 3 - Oral Expression). If he passes, he is exempt from following the corresponding course activities : he will either do the ANGL1873 exam at the end of the third year (2 credits), or he will choose to follow another advanced language course for a minimum of 2 credits, depending on his competence.

The ensemble of subjects covers the 14 weeks of the quadrimester ; the S0 week is spread over the first week of the first year, the projects of the first year and the first quadrimester of the second year are spread over the first 11 weeks of the quadrimester.

By way of information, details of the academic content of the subjects for the first year and a half are accessible via the

following links :
Mathematics
Physics
Chemistry and Physical Chemistry
Computing Studies
Numerical Methods
Design
and Projects

Specialised studies (43 credits)

The student will choose one of the six courses relating to the following majors : Chemistry and Applied Physics, Construction, Electricity, Computer Studies, Applied Mathematics and Mechanics.

The table summarising the presentation of each of the specialised training courses as well as the division of the courses per year and per quadrimester is accessible by clicking on the corresponding titles.

Major in Chemistry and Applied Physics

MAPR1310	Thermodynamics of phase equilibrium[30h+15h] (4 credits)2q (in French)	Francis Delannay (coord.), Pascal Jacques
MAPR1400	Applied Kinetics[30h+30h] (5 credits)2q (in French)	Christian Bailly, Juray De Wilde
MAPR1230	Complements of organic chemistry[15h+15h] (2 credits)1q (in French)	Sophie Demoustier, Pierre Godard (coord.)
MAPR1231	Supplements in inorganic chemistry[30h+15h] (4 credits)2q (in French)	Joris Proost
MAPR1491	Supplements in physics[30h+22.5h] (4 credits)1q (in French)	Jean-Christophe Charlier (coord.), Xavier Gonze, Luc Piraux, Gian-Marco Rignanese
MAPR1492	Materials physics[30h+15h] (4 credits)2q (in French)	Jean-Christophe Charlier (coord.), Xavier Gonze, Luc Piraux, Gian-Marco Rignanese
MAPR1805	Introduction to materials science[45h] (4 credits)2q (in French)	Jean-Christophe Charlier, Roger Legras (coord.), Thomas Pardoen
ELEC2525A	Introduction à l'électronique digitale A[15h+15h] (2 credits)1q (in French)	Jean-Didier Legat, Jean-Didier Legat (supplée null)
FSAB1221A	Introduction au monde du vivant, partie 1 A[15h] (2 credits)2q (in French)	Philippe Lefèvre (coord.), Yves-Jacques Schneider
MECA1901	Continuum mechanics.[30h+30h] (5 credits)1q (in French)	François Dupret
MECA1100A	Mécanique des solides déformables A[15h+15h] (2 credits)2q (in French)	N.
MECA1321	Fluid mechanics and transfer phenomena.[30h+30h] (5 credits)2q (in French)	Vincent Legat, Grégoire Winckelmans

Major in Construction

MAPR1310A	Thermodynamique - équilibres entre phases A[22.5h+7.5h] (3 credits)2q (in French)	N.
MECA1901	Continuum mechanics.[30h+30h] (5 credits)1q (in French)	François Dupret
MECA1100	Deformable solid mechanics.[30h+30h] (5 credits)2q (in French)	Issam Doghri
AUCE1801	Construction [30h][30h] (3 credits)1q (in French)	Nicolas Van Oost
AUCE1901A	Confort et Physique du bâtiment (thermique, acoustique et éclairage) A[20h] (2 credits)2q (in French)	N.
AUCE1111	Project of structure I[15h+45h] (4 credits)2q (in French)	Jean-François Remacle, Jean-François Thimus
AUCE1151	Hydrologie générale et statistique[10h+15h] (2 credits)1q (in French)	Yves Zech
AUCE1152	Hydraulic[30h+30h] (5 credits)2q (in French)	Yves Zech
AUCE1171	Geology and mineralogy[25h+15h] (3 credits)2q (in French)	Christian Schroeder, Philippe Sonnet
AUCE1172	Soil mechanics[25h+22.5h] (4 credits)1q (in French)	Jacques De Jaeger, Alain Holeyman, Jean-François Thimus (coord.)
AUCE1173	Applied soil mechanics[30h+22.5h] (4 credits)2q (in French)	Jacques De Jaeger, Alain Holeyman, Jean-François Thimus, Jean-François Thimus (coord.), Jean-François Thimus (supplée Alain Holeyman)
AUCE1031	STRUCTURAL MATERIALS[15h+15h] (3 credits)2q (in French)	Jean-François Cap

Major in Electricity

ELEC1101	Project in Electricity 1 : Electrical circuits[0h+60h] (5 credits)2q (in French)	Francis Labrique, Charles Trullemans
ELEC1102	PROJECT IN ELECTRICITY 2 : PHYSICS OF ELECTRICITY[0h+45h] (3 credits)1q (in French)	Christophe Craeye, Christophe Craeye (supplée Danielle Janvier), Denis Flandre, Denis Flandre (supplée Danielle Janvier), Danielle Janvier (coord.)
ELEC1370	Measurements and electrical circuits[30h+30h] (5 credits)2q (in French)	Francis Labrique, Charles Trullemans
ELEC1330	Physics of electronics[30h+30h] (5 credits)1q (in French)	Vincent Bayot (coord.), Denis Flandre, Jean-Pierre Raskin
ELEC1350	Electromagnétisme appliqué[30h+30h] (5 credits)1q (in French)	Christophe Craeye, Christophe Craeye (supplée Danielle Janvier), Danielle Janvier
ELEC1530	Electronics I : Basic amplifiers circuits[30h+30h] (5 credits)2q (in French)	Jean-Didier Legat, Charles Trullemans
ELEC1360	Télécommunications[30h+30h] (5 credits)2q (in French)	Luc Vandendorpe
ELEC1310	ELECTROMECHANICAL CONVERTERS[30h+30h] (5 credits)2q (in French)	Bruno Dehez, Francis Labrique (coord.), Ernest Matagne
ELEC1510	Linear Automatic[30h+37.5h] (5 credits)2q (in French)	Georges Bastin

Major in Computing studies

INGI1101	Discrete mathematics: logical foundations of computing science[30h+30h] (4 credits)1q (in French)	Chantal Poncin (supplée Axel Van Lamsweerde), Axel Van Lamsweerde
SINF1121	Algorithmics and data structures[30h+30h] (5 credits)1q (in French)	Pierre Dupont
INGI1122	Program conception methods[30h+30h] (5 credits)2q (in French)	Baudouin Le Charlier
INGI1131	Computer language concepts[30h+30h] (5 credits)2q (in French)	Peter Van Roy
INGI1123	computability and complexity[30h+30h] (4 credits)2q (in French)	Yves Deville
SINF1252	Introduction to computer systems[30h+30h] (5 credits)2q (in French)	Marc Lobelle
INGI1113	Operating systems 1[30h+30h] (5 credits)1q (in French)	Olivier Bonaventure
INGI1271	Files and databases[30h+30h] (5 credits)2q (in French)	Alain Pirotte
SINF1124	Programming project[0h+60h] (5 credits)2q (in French)	Marco Saerens

Major in Applied Mathematics

INMA1375	Project in applied mathematics[0h+45h] (5 credits)2q (in French)	Pierre-Antoine Absil, François Glineur (coord.), Yurii Nesterov, Vincent Wertz
INMA1380	A préciser (in French)	
INMA1702	Applied mathematics : Optimization[30h+22.5h] (5 credits)1q (in French)	Vincent Blondel, François Glineur
INMA1691	Discrete mathematics - Graph theory and algorithms[30h+22.5h] (5 credits)2q (in French)	Vincent Blondel, Laurence Wolsey
INMA1731	Stochastic processes : Estimation and prediction[30h+30h] (5 credits)2q (in French)	Michel Gevers, Jérôme Louveaux (supplée Michel Gevers), Luc Vandendorpe (coord.)
INMA1170	Numerical analysis[22.5h+30h] (5 credits)1q (in French)	Pierre-Antoine Absil, Paul Van Dooren, Paul Van Dooren
MECA1901	Continuum mechanics.[30h+30h] (5 credits)1q (in French)	François Dupret
INMA1375	Project in applied mathematics[0h+45h] (5 credits)2q (in French)	Pierre-Antoine Absil, François Glineur (coord.), Yurii Nesterov, Vincent Wertz

In this major, the student will choose, among others, an option of at least 3 credits from the minors accessible to the students enrolled on the bachelor of Engineering programme. The choice will be subject to the approval of the bachelor Committee.

Major in Mechanics

MECA1901	Continuum mechanics.[30h+30h] (5 credits)1q (in French)	François Dupret
MAPR1310A	Thermodynamique - équilibres entre phases A[22.5h+7.5h] (3 credits)2q (in French)	N.
MECA1855	Thermodynamics and energetics.[30h+30h] (5 credits)1q (in French)	Hervé Jeanmart, Miltiadis Papalexandris
MAPR1805A	Introduction à la science des matériaux A[22.5h] (2	N.

	credits)2q (in French)	
MECA1821	Machine design.[30h+30h] (5 credits)2q (in French)	Bruno de Meester de Betzenbroeck, Benoît Raucent
MECA1200	Mechanical construction project I A.[10h+25h] (2.5 credits)2q (in French)	David Johnson, Benoît Raucent
MECA1201	Projet en modélisation et simulation (nouveau cours)[10h+20h] (2 credits)1q (in French)	Paul Fisette, Jean-Claude Samin
MECA1321	Fluid mechanics and transfer phenomena.[30h+30h] (5 credits)2q (in French)	Vincent Legat, Grégoire Winckelmans
MECA1100	Deformable solid mechanics.[30h+30h] (5 credits)2q (in French)	Issam Doghri
MECA1510	Dynamics of elastic systems.[30h+30h] (5 credits)2q (in French)	Jean-Pierre Coyette, David Johnson
MECA1451	Mechanical manufacturing.[30h+30h] (4 credits)2q (in French)	Bruno de Meester de Betzenbroeck, Jean-François Debongnie

Option : minor or options

To comple his programme, the student will constitute a minor for himself, worth 30 credits, in accordance with one of the three possibilities described below :

1. Either a minor in Polytechnic studies

The description of each of the polytechnic minors offered by the Faculty of Applied Sciences as well as the distribution of the courses per year and per quadrimester are accessible by clicking on the corresponding course title. The student may choose one of them, different from that of the major followed in the context of his bachelor programme of Engineering Sciences - Civil Engineering.

Minor in Chemistry and Applied Physics (31 credits)

Minor in Construction (31 credits)

Minor in Electricity (30 credits)

Minor in Computer studies (30 credits)

Minor in Applied Mathematics (30 credits)

Minor in Mechanics (30 credits)

2. Or, an opening minor

The student may choose a minor (30 credits) from another faculty or institute of the University, even an inter-faculty minor, as listed. Some of these minors will enable course re-orientation with access to the corresponding masters. (list)

The student interested in this minor, will take into account that the nominal division of the minors at UCL is around 15 credits in the second year and 15 credits in the third year. In order to make the study-load compatible, the student who chooses this path has the possibility, if he so wishes and as long as the timetable and prerequisities permit, to postpone the volume of a course equal to 5 credits from the second to the third year so that each year of this programme manages to attain the 60 credits. Any programme so constituted must be approved by the bachelor Committee of the FSA.

3. Or, options

The student may also choose courses from the programme of the Faculty (in-depth course) or from the University (opening course).

If the constitution of his programme so permits, the student may follow the FSA2300, Questions on Religious Sciences course as one of his options (2 credits). In the case of the latter, he will no longer need to follow this course during his studies in "master of Engineering Sciences - Civil Engineering ".

The student will make his choices in relation with the specialisation of his major and of a minor at the end of the 1st quadrimester of the 2nd year of the bachelor programme. In order to help him do so, information sessions with regard to the different possibiities are organised during the first quadrimester of the second year. The student may also seek advice from the Study Advisor.

The constituted programme will have to be accepted by the bachelor Committee of the FSA.