UCLouvain

FSA1BA

2026 - 2027

Bachelor in Engineering

At Louvain-la-Neuve - 180 credits - 3 years - Day schedule - In French
Dissertation/Graduation Project : **NO** - Internship : **NO**
Activities in English: **YES** - Activities in other languages : **NO**
Activities on other sites : **NO**
Main study domain : **Sciences de l'ingénieur et technologie**
Organized by: **Louvain School of Engineering (EPL)**
Programme acronym: **FSA1BA** - Francophone Certification Framework: 6

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FSA1BA - Introduction

Introduction

Introduction

After passing the admission test you will start your cursus with the bachelor's programme in Engineering Sciences [180]. This programme offers a basic science education and a specific training in Engineering sciences.

During the second annual unit, you will opt for two different trainings in specialized Polytechnics. These specialization tracks enable you to get acquainted with two specialties in Engineering Sciences and to prepare you for a specialized master. Seven different specialization tracks are available: Applied Chemistry and Physics, Construction, Electricity, Computer Sciences, Biomedical Engineering, Applied Mathematics and Mechanics.

The student has the possibility to replace one of these tracks by an accessible opening minor.

Your profile

Following a strong math and science education during high school is recommended.

Your future job

All industrial sectors need civil engineers: the chemical industry, pharmaceutical and food industries, electronics and telecommunications industries, metallurgy, aeronautics, construction and engineering, large scale distribution, banking and consulting services, nanotechnologies and medical technologies, etc.

They play a role as researchers and developers, are responsible for production or management and hold jobs in marketing and sales (of advanced technological products).

We find civil engineers in departments of finance, information technology, training or quality control, the public sector, higher education, or in the Ministry of equipment and transportation. (www.fabi.be)

Your programme

The programme offers :

- a strong scientific education in : mathematics, physics, chemistry, computer science, numerical computation, probabilities and statistics, ...
- a problem-based learning in small groups
- a training in concrete problem analyzing, looking for missing items, and developing your own solutions
- engineering projects management, from the conception to completion
- high-level skills: analysis, critical thinking, communication, team working, conception in a multididciplinary context.

Once bachelor, you will continue your training by one of the following Masters: Biomedical Engineering, Chemical and Materials Engineering, Civil Engineering, Computer science, Data Sciences Engineering, Physical Engineering, Mechanical Engineering, Electrical Engineering, Electro-mechanical Engineering, Mathematical Engineering and Energical Engineering.

FSA1BA - Teaching profile

Learning outcomes

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).

On successful completion of this programme, each student is able to :

Axe 1 : utiliser un corpus de **connaissances en sciences fondamentales et polytechniques** , lui permettant de résoudre des problématiques disciplinaires cadrées.

1.1. Appliquer les concepts, lois, raisonnements à une problématique disciplinaire de complexité cadrée.

1.2. Décrire des outils de modélisation et de calcul adéquats pour résoudre une problématique disciplinaire cadrée.

Axe 2 : analyser, organiser et mener à son terme une **démarche d'ingénierie** appliquée au développement d'un produit (et/ou d'un service) répondant à un besoin ou à une problématique cadrée, à l'analyse d'un phénomène physique donné, un système.

2.1. Décrire et formuler le problème à résoudre ou le besoin fonctionnel sous la forme d'un cahier des charges générique.
2.2. Se documenter sur l'état des connaissances actuelles dans le domaine de la problématique posée.
2.3. Poser des hypothèses de travail pour la modélisation d'une problématique cadrée.
2.4. Modéliser un problème et concevoir une ou plusieurs solutions techniques répondant au cahier des charges.
2.5. Implémenter et tester une solution sous la forme d'une maquette, d'un prototype et/ou d'un modèle numérique.
2.6. Synthétiser en vue d'expliciter : les hypothèses, la modélisation et la solution proposée.
2.7. Porter un regard critique sur des hypothèses prises et sur la pertinence des solutions (autoévaluation individuelle).
2.8. Formuler des recommandations pour améliorer la solution étudiée, le système analysé.
2.9. Penser de manière disruptive et créative en s'ouvrant à la pluralité.

Axe 3 : contribuer, en équipe, à la réalisation d'un **projet disciplinaire ou pluridisciplinaire** en respectant une approche cadrée.

3.1. Etablir et s'engager collectivement sur un plan de travail, un échéancier, des fonctions et des rôles, s'y engager, pour mettre en oeuvre des tâches du projet sur un plan de travail, un échéancier, des fonctions et des rôles, s'y engager, pour mettre en oeuvre des tâches du projet uni/multi/inter/transdisciplinaire.
3.2. S'autoévaluer de manière critique, continue et collaborative en vue de fonctionner efficacement en équipe.

Axe 4 : **communiquer efficacement oralement et par écrit** , en français et en anglais, les résultats des missions qui lui sont confiées.

4.1. Argumenter et convaincre au sein de l'équipe et vis-à-vis des enseignants et des jurys.
4.2. Communiquer sous forme graphique et schématique ; interpréter un schéma, présenter les résultats d'un travail, structurer des informations.
4.3. Lire, analyser et exploiter des documents techniques (normes, plans, cahier de charge, spécifications, …).
4.4. Rédiger des documents écrits de synthèse en tenant compte des exigences posées dans le cadre des missions (projets et problèmes).
4.5. Faire un exposé oral convaincant en utilisant les techniques modernes de communication.

Axe 5 : **Mobiliser avec rigueur ses compétences scientifiques et techniques et son sens critique pour analyser des situations complexes** en adoptant une approche systémique et transdisciplinaire, et **adapter ses réponses techniques aux enjeux actuels et futurs de la transition socio-économico-écologique** , contribuant ainsi activement à la transformation de la société.

Cet axe de compétence se développe tout au long du bachelier et du master. Il demande, entre autres, de mobiliser une succession de compétences qui sont explicitées ci-dessous. Ces compétences sont développées dans les programmes de bachelier et de master avec une différenciation principalement au niveau de la complexité et du degré d'approfondissement attendus, et au niveau du degré d'autonomie dont fait preuve l'étudiant.

5.1 Acquérir et utiliser un socle de connaissances sur les enjeux et les outils d'évaluation multi-critères de la soutenabilité d'une technologie, de manière quantitative et/ou qualitative.

5.2 Définir, préciser et analyser une problématique dans toute sa complexité en tenant compte de ses différentes dimensions (sociales, éthiques, environnementales, ...), échelles (de temps, lieux) et de l'incertitude.

5.3. Identifier, proposer et actionner les leviers de l'ingénieur pouvant contribuer au développement durable et à la transition (éco-conception, robustesse, circularité, efficacité énergétique,

5.4. Faire preuve d'esprit critique vis-à-vis d'une solution technique, en connaître les limites, et se positionner sur le plan personnel en regard des enjeux éthiques, environnementaux et sociétaux.

Programme structure

The bachelor's programme in Engineering Sciences: Engineering, includes 180 credits spread over 3 years:

- A basic science education of 120 credits,
- Two specialized training streams (30 credits each), one of these streams can be replaced by an opening minor.

The student has the possibility of choosing two courses in engineering sciences, each in a different orientation. The purpose of this dual track system is to enable students who so wish to have basic training in two engineering science specialities, increasing their technical versatility, or preparing for a master's degree in civil engineering in a field relating to several of the basic orientations offered at the level of the bachelor's program. The distribution of volumes for polytechnic courses is 10 credits in the second annual block and 20 credits in the third annual block.

The student has the possibility to replace one of the specialization tracks by an accessible opening minor .

The seven different specialization tracks in Engineering Sciences are :

1. **Biomedical Engineering** : The aim of this track is initiating the students to the multidisciplinary field of biomedical engineering. First, this requires an introduction to the different disciplines of life sciences (biology, anatomy, biochemistry, etc.). Next, a familiarization with fundamental challenges from the different pillars of biomedical engineering will be provided (bioinstrumentation, biomaterials, biomechanics, artificial organs, medical imaging, biological systems modeling, etc.). The students will then be able to deploy these skills in order to solve basic problems in biomedical engineering.
2. **Civil Engineering** : The aim of this track is initiating the students to the basic concepts of civil engineering. In addition to the theoretical fundaments about structures, materials, soil mechanics and hydraulics, the students will be immersed in the “civil engineering culture” and will acquire concrete experience by practical and laboratory works, basic projects and site visits.
3. **Electricity** : The aim of this track is initiating the students to the basic concepts of electrical sciences and providing them the fundamental notions in the scientific and technical fields linked to electricity and its applications. More precisely the students will discover the fundaments of electromagnetics and physical phenomena forming the basis of electronic devices working ; as well as the basic concepts of electronics, telecommunications, and electrodynamic converters.
4. **Mechanics** : The aim of this track is to enable the students to increase and broaden their knowledge and skills in different areas of Mechanical Engineering. More specifically, this programme offers the students the opportunity to build a solid background knowledge of continuum mechanics (fluid and solid mechanics) and thermodynamics, both from the theoretical and the applied standpoints. Further, it offers applied but rigorous training in machine design, analysis of machine components and manufacturing. Finally, this programme allows the students to develop a strong expertise in mathematical modelling and methods for numerical simulation.
5. **Computer science** : The aim of this track is to enable the students to master the basic concepts in the field of computer sciences. More precisely this specialization trains the students to acquire basic fundaments in computer sciences (algorithmic and data structures, computer languages, informatic systems, databases); and the capacity to analyze and solve algorithmic problems by applying its knowledge in the field of computer and engineering sciences.
6. **Applied Mathematics** : The aim of this track is to enable the students to increase and improve their knowledge and skills in various fields of applied mathematics and to understand their basic concepts. More precisely this specialization trains the students in the design, analysis and implementation of mathematical models for engineering sciences in the industry, and in the elaboration of effective strategies to optimise their performance.
7. **Applied Chemical and Physics** : The aim of this track is to enable the students to build a broad knowledge skills base in applied chemistry and physics (including thermodynamics and kinetics) opening avenues to the main fields of chemical and environmental engineering, advanced materials engineering, as well as physical engineering. The acquired skills cover a wide range of physical scales, from atomic to macroscopic and industrial dimensions, and prepare to the professions of the engineering master in chemistry and materials science swell as the master in physical engineering (chemical and environmental engineering, sustainable chemistry and energy, nanotechnology, (nano)electronics, optics, advanced materials including biomaterials, sensors and transducers, etc.).

FSA1BA Programme

Detailed programme by subject

- Mandatory
- Optional
- Not offered in 2026-2027
- Not offered in 2026-2027 but offered the following year
- Offered in 2026-2027 but not the following year
- Not offered in 2026-2027 or the following year
- Activity with requisites
- Open to incoming exchange students
- Not open to incoming exchange students
- [FR] Teaching language (FR, EN, ES, NL, DE, ...)

Click on the course title to see detailed informations (objectives, methods, evaluation...)

Obligatory Courses (120 credits)

General Courses (120 credits)

All the students attend all these courses.

				Year 1	2	3
LEPL1101	Algebra	François Glineur Raphaël Jungers (coord.) Estelle Massart Jean-François Remacle Michel Verleysen	[FR] [q1] [30h+30h] [5 Credits]	x		
LEPL1102	Analysis	François Glineur (coord.) Raphaël Jungers Jean-François Remacle	[FR] [q1] [30h+30h] [5 Credits]	x		
LEPL1201	Physics I	Dimitri Lederer Dimitri Lederer (compensates Laurent Francis) Vincent Legat Thomas Pardoen	[FR] [q1] [30h+30h] [5 Credits]	x		
LEPL1501	Project 1	Charles Pecheur Renaud Ronsse Sandra Soares Frazao (coord.)	[FR] [q1] [30h+30h] [5 Credits]	x		
LEPL1401	Informatics 1	Kim Mens Charles Pecheur Cristel Pelsser	[FR] [q1] [30h+30h] [5 Credits]	x		
LEPL1103	Mathematics and physics on continuous media	Philippe Chatelain (coord.) Nicolas Moës Jean-François Remacle	[FR] [q1] [30h+30h] [5 Credits]		x	
LEPL1104	Numerical methods	Vincent Legat	[FR] [q2] [30h+30h] [5 Credits]	x		
LEPL1105	Analysis II	François Glineur Laurent Jacques	[FR] [q2] [30h+30h] [5 Credits]	x		
LEPL1106	Signals and systems	Julien Hendrickx Luc Vandendorpe	[FR] [q2] [30h+30h] [5 Credits]		x	
LEPL1202	Physics II	Paul Fisette Claude Oestges	[FR] [q2] [30h+30h] [5 Credits]	x		
LEPL1203	Physics III	Jean-Christophe Charlier Jérôme Louveaux Claude Oestges	[FR] [q1] [30h+30h] [5 Credits]		x	
LEPL1108	Discrete mathematics and probability	Jean-Charles Delvenne Olivier Pereira	[FR] [q1] [30h+30h] [5 Credits]		x	
LEPL1109	Statistics and data sciences	Donatien Hainaut Laurent Jacques	[FR] [q1] [30h+30h] [5 Credits]			x
LEPL1111	Linear Control	Gianluca Bianchin (coord.) Julien Hendrickx	[EN] [q2] [30h+30h] [5 Credits] *> French-friendly*			x
LEPL1502	Project 2	David Bol Jérôme Louveaux Claude Oestges (coord.)	[FR] [q2] [30h+30h] [5 Credits]	x		
LEPL1503	Project 3	Olivier Bonaventure (coord.) Benoît Legat	[FR] [q2] [30h+30h] [5 Credits]		x	

				Year 1	2	3
LEPL1301	Chemistry and Physical chemistry 1	Sophie Demoustier Karine Glinel Alain Jonas	FR [q2] [30h+30h] [5 Credits]	x		
LEPL1302	Chemistry and Physical chemistry 2	Pascal Jacques (compensates Joris Proost) Hervé Jeanmart	FR [q1] [30h+30h] [5 Credits]		x	
LEPL1402	Informatics 2	Sébastien Jodogne Ramin Sadre Pierre Schaus	FR [q1] [30h+30h] [5 Credits]		x	

Non-disciplinary Courses

LEPL1801	Engineering ethics	Alexandre Guay	FR [q1] [22.5h+15h] [3 Credits]	x		
LEPL1803	Economy	Olivier Daxhelet Julien Hendrickx	FR [q2] [30h+30h] [5 Credits]	x		
LEPL1804	Sustainable development and transition	David Bol Francesco Contino Patricia Luis Alconero Xavier Marichal Jean-Pierre Raskin	FR [q1] [30h+15h] [3 Credits]			x

3rd annual unit project

Students choose one of the following projects. This project must correspond to one of their EPL courses. It is also possible to choose the LEPL1511 course or the LSST1001 course instead of one of the projects. These projects remain open on application and selection only.

LEPL1504	Project 4 (in mechanics)	Nicolas Docquier Paul Fisette	FR [q2] [30h+22.5h] [5 Credits]			x
LEPL1505	Project 4 (in chemistry and physics)	Karine Glinel Thomas Pardoen	FR [q2] [30h+22.5h] [5 Credits]			x
LEPL1506	Project 4 (in biomedical engineering)	Philippe Lefèvre	FR [q2] [30h+22.5h] [5 Credits]			x
LEPL1507	Project 4 (in applied mathematics)	Gautier Krings (compensates Julien Hendrickx) Estelle Massart	FR [q2] [30h+22.5h] [5 Credits]			x
LEPL1508	Project 4 (in electricity)	Christophe Craeye Dimitri Lederer Luc Vandendorpe	FR [q2] [30h+22.5h] [5 Credits]			x
LEPL1509	Project 4 (in informatics)	Hélène Verhaeghe	FR [q2] [30h+22.5h] [5 Credits]			x
LEPL1510	Project 4 (in construction)	Pierre Latteur	FR [q2] [30h+22.5h] [5 Credits]			x
LEPL1511	Project 4 (in business projects creation)	Julien Hendrickx	FR [q2] [30h+22.5h] [5 Credits]			x
LSST1001	IngénieuxSud	Stéphanie Merle Jean-Pierre Raskin	FR [q1+q2] [30h+22.5h] [5 Credits]			x

Language Courses (7 credits)

English courses (7 credits)

LANGL1171	English for Engineers 1 *A placement test is organized at the beginning of the annual unit 1 and 2. Depending on the obtained mark, the students follow an adapted course. The students with a mark gretaer or equal to 16/20 keep their mark and could take an additional language course (out of the 180 credits); this additional course will only affect their average mark if credited (mark greater or equal to 10/20)*	Frédéric Doisy Hila Peer Marc Piwnik Nevin Serbest (coord.) Anne-Julie Toubeau (coord.)	EN [q1] [12h] [2 Credits]	x		
LANGL1272	English for Engineers 2 *A placement test is organized at the beginning of the annual unit 1 and 2. Depending on the obtained mark, the students follow an adapted course. The students with a mark gretaer or equal to 16/20 keep their mark and could take an additional language course (out of the 180 credits); this additional course will only affect their average mark if credited (mark greater or equal to 10/20)*	Frédéric Doisy Adrien Kefer Marc Piwnik (coord.)	EN [q1] [30h] [3 Credits]		x	

				Year 1	2	3
LANGL1373	English for Engineers 3	Ahmed Adrioueche (coord.) Stéphanie Brabant Dominique François Nicholas Gibbs Ariane Halleux Coline Jacquemin Sandrine Meirlaen Lucille Meyers Charlotte Peters (coord.) Adrien Pham Nevin Serbest Florence Simon	EN [q1] [30h] [2 Credits]			x

Dutch courses

LNEER1300	General and academic Dutch - intermediate level	Hilde Bufkens (coord.)	NL [q2] [30h] [2 Credits]	x		
LNEER1500	Interfaculty teaching unit - General and academic Dutch - upper-intermediate level	Valérie Dachy (coord.)	NL [q1] [30h] [3 Credits]		x	

German courses

LALLE1101	German beginner's level 1st part (0-A1)	Fanny Desterbecq (compensates Ann Rinder)	DE [q1 or q2] [45h] [2 Credits]	x		
LALLE1102	German beginner's level 2nd part (A1 - A2)	Caroline Klein (coord.) Mélanie Mottin (compensates Caroline Klein)	DE [q2] [45h] [2 Credits]	x		
LALLE1300	General German – independent user – threshold	Virginie Godin (coord.)	DE [q1+q2] [90h] [3 Credits]		x	

Spanish Courses

LESPA1101	Spanish beginner's level 1st part (0-A1)	Fernando Juan San Basilio Pardo Alicia Maria Tirado Fernandez (coord.)	ES [q1 or q2] [45h] [2 Credits]	x		
LESPA1102	Spanish (beginner¿s level) 2nd part (A1 - A2)	Alicia Maria Tirado Fernandez (coord.)	ES [q1 or q2] [45h] [2 Credits]	x		
LESPA1301	Spanish intermediate level, 1st part (A2-B1.1)	Fernando Juan San Basilio Pardo (compensates Begona Garcia Migura) Alicia Maria Tirado Fernandez (coord.)	ES [q1 or q2] [45h] [3 Credits]		x	
LESPA1302	Spanish intermediate level, 2nd part (B1.1-B1.2)	Alicia Maria Tirado Fernandez (coord.)	ES [q2] [45h] [3 Credits]		x	

Other language courses
The student could propose a course in another language.

Religion courses for students in exact sciences (2 credits)
The students select one course between:

LTECO2100	Sociétés, cultures, religions : Biblical readings	Simon Naveau	FR [q1] [15h] [2 Credits]		x	
LTECO2300	Societies, cultures, religions : Ethical questions	Marcela Lobo Bustamante	FR [q1] [15h] [2 Credits]		x	
LTHEO2840	Science and Christian faith	Paulo Jorge Dos Santos Rodrigues	FR [q1] [15h] [2 Credits]		x	
LTECO2200	Societies-cultures-religions : Human Questions	Pedro Dusabamahoro Valinho Gomes	FR [q1] [15h] [2 Credits]		x	

Minor or additional module

Maximum 2 element(s)

List of available minors

The student can choose to replace one of his·her specialization tracks by a non-polytechnic opening minor. The list of accessible minors is below. The choice has to be made before the beginning of the second annual unit.

> Specialization track in Applied Chemistry and Physics *[en-prog-2026-filfyki]*
> Specialization track in Construction *[en-prog-2026-filgce]*
> Specialization track in Electricity *[en-prog-2026-filelec]*
> Specialization track in Biomedical Engineering *[en-prog-2026-filgbio]*
> Specialization track in Computer Science *[en-prog-2026-filinfo]*
> Specialization track in Applied Mathematics *[en-prog-2026-filmap]*
> Specialization track in Mechanics *[en-prog-2026-filmeca]*
> Minor in Scientific Culture *[en-prog-2026-mincults]*
> Minor in Geography *[en-prog-2026-mingeog]*
> Minor in Mathematics *[en-prog-2026-minmath]*
> Minor in Physics *[en-prog-2026-minphys]*
> Minor in Statistics, Actuarial Sciences and Data Sciences *[en-prog-2026-minstat]*
> Minor in Urban Architecture *[en-prog-2026-minarch]*
> Minor in Development and Environment *[en-prog-2026-mindenv]*
> Minor : Issues of Transition and Sustainable Development (*) *[en-prog-2026-mindd]*
> Minor in Economics *[en-prog-2026-minecon]*
> Minor in entrepreneurship (*) *[en-prog-2026-minmpme]*
> Minor in Gender Studies *[en-prog-2026-mingenre]*
> Minor in European Studies *[en-prog-2026-mineuro]*
> Mineure en gestion *[en-prog-2026-mingest]*
> Minor in Information and Communication *[en-prog-2026-mincomu]*
> Minor in Human and Social Sciences *[en-prog-2026-minhuso]*
> Minor in Law (access) *[en-prog-2026-minadroi]*
> Minor in Law (openness) *[en-prog-2026-minodroi]*
> Minor in Culture and Creation *[en-prog-2026-mincucrea]*
> Minor in Musicology *[en-prog-2026-minmusi]*
> Minor in Philosophy *[en-prog-2026-minfilo]*
> Minor in Dutch language and culture (*) *[en-prog-2026-minneerl]*
> Minor in Literary Studies *[en-prog-2026-minlitter]*

(*) This programme is the subject of access criteria

Course prerequisites

The **table** below lists the activities (course units, or CUs) for which there are one or more prerequisites within the programme, i.e. the programme CU for which the learning outcomes must be certified and the corresponding credits awarded by the jury before registering for that CU.

These activities are also identified **in the detailed programme** : their title is followed by a yellow square.

Prerequisites and student's annual programme

As the prerequisite is for CU registration puposes only, there are no prerequisites within a programme year. Prerequisites are defined between CUs of different years and therefore influence the order in which the student will be able to register for the programme's CUs.

In addition, when the jury validates a student's individual programme at the beginning of the year, it ensures its coherence, meaning that it may:

- require the student to combine registration in two separate CUs which it considers necessary from a pedagogical point of view.
- transform a prerequisite into a corequisite if the student is in the final year of a degree course.

For more information, please consult the Academic Regulations and Procedures .

 # Prerequisities list

LANGL1272 "Anglais pour ingénieurs civils 2" has prerequisite(s) LANGL1171
- LANGL1171 - English for Engineers 1

LANGL1373 "Anglais pour ingénieurs civils 3" has prerequisite(s) LANGL1272
- LANGL1272 - English for Engineers 2

LEPL1402 "Informatique 2" has prerequisite(s) LEPL1401
- LEPL1401 - Informatics 1

The programme's courses and learning outcomes

For each UCLouvain training programme, a reference framework of learning outcomes specifies the the skills expected of every graduate on completion of the programme. Course unit descriptions specify targeted learning outcomes, as well as the unit's contribution to reference framework of learning outcomes.

Detailed programme per annual block

FSA1BA - 1ST ANNUAL UNIT

- Mandatory
- Optional
- Not offered in 2026-2027
- Not offered in 2026-2027 but offered the following year
- Offered in 2026-2027 but not the following year
- Not offered in 2026-2027 or the following year
- Activity with requisites
- Open to incoming exchange students
- Not open to incoming exchange students
- [FR] Teaching language (FR, EN, ES, NL, DE, ...)

Click on the course title to see detailed informations (objectives, methods, evaluation...)

Obligatory Courses

General Courses

All the students attend all these courses.

LEPL1101	Algebra	François Glineur Raphaël Jungers (coord.) Estelle Massart Jean-François Remacle Michel Verleysen	[FR] [q1] [30h +30h] [5 Credits]

LEPL1102	Analysis	François Glineur (coord.) Raphaël Jungers Jean-François Remacle	FR [q1] [30h +30h] [5 Credits]
LEPL1201	Physics I	Dimitri Lederer Dimitri Lederer (compensates Laurent Francis) Vincent Legat Thomas Pardoen	FR [q1] [30h +30h] [5 Credits]
LEPL1501	Project 1	Charles Pecheur Renaud Ronsse Sandra Soares Frazao (coord.)	FR [q1] [30h +30h] [5 Credits]
LEPL1401	Informatics 1	Kim Mens Charles Pecheur Cristel Pelsser	FR [q1] [30h +30h] [5 Credits]
LEPL1104	Numerical methods	Vincent Legat	FR [q2] [30h +30h] [5 Credits]
LEPL1105	Analysis II	François Glineur Laurent Jacques	FR [q2] [30h +30h] [5 Credits]
LEPL1202	Physics II	Paul Fisette Claude Oestges	FR [q2] [30h +30h] [5 Credits]
LEPL1502	Project 2	David Bol Jérôme Louveaux Claude Oestges (coord.)	FR [q2] [30h +30h] [5 Credits]
LEPL1301	Chemistry and Physical chemistry 1	Sophie Demoustier Karine Glinel Alain Jonas	FR [q2] [30h +30h] [5 Credits]

Non-disciplinary Courses

LEPL1801	Engineering ethics	Alexandre Guay	FR [q1] [22.5h +15h] [3 Credits]
LEPL1803	Economy	Olivier Daxhelet Julien Hendrickx	FR [q2] [30h +30h] [5 Credits]

Language Courses

English courses

LANGL1171	English for Engineers 1 *A placement test is organized at the beginning of the annual unit 1 and 2. Depending on the obtained mark, the students follow an adapted course. The students with a mark gretaer or equal to 16/20 keep their mark and could take an additional language course (out of the 180 credits); this additional course will only affect their average mark if credited (mark greater or equal to 10/20)*	Frédéric Doisy Hila Peer Marc Piwnik Nevin Serbest (coord.) Anne-Julie Toubeau (coord.)	EN [q1] [12h] [2 Credits]

Dutch courses

LNEER1300	General and academic Dutch - intermediate level	Hilde Bufkens (coord.)	NL [q2] [30h] [2 Credits]

German courses

LALLE1101	German beginner's level 1st part (0-A1)	Fanny Desterbecq (compensates Ann Rinder)	DE [q1 or q2] [45h] [2 Credits]
LALLE1102	German beginner's level 2nd part (A1 - A2)	Caroline Klein (coord.) Mélanie Mottin (compensates Caroline Klein)	DE [q2] [45h] [2 Credits]

⊠ Spanish Courses

⊠ LESPA1101	Spanish beginner's level 1st part (0-A1)	Fernando Juan San Basilio Pardo Alicia Maria Tirado Fernandez (coord.)	ESS [q1 or q2] [45h] [2 Credits]
⊠ LESPA1102	Spanish (beginner¿s level) 2nd part (A1 - A2)	Alicia Maria Tirado Fernandez (coord.)	ESS [q1 or q2] [45h] [2 Credits]

FSA1BA - 2ND ANNUAL UNIT

- O Mandatory
- ⊠ Optional
- △ Not offered in 2026-2027
- ⊘ Not offered in 2026-2027 but offered the following year
- ⊕ Offered in 2026-2027 but not the following year
- △ ⊕ Not offered in 2026-2027 or the following year
- Activity with requisites
- Open to incoming exchange students
- Not open to incoming exchange students
- [FR] Teaching language (FR, EN, ES, NL, DE, ...)

Click on the course title to see detailed informations (objectives, methods, evaluation...)

O Obligatory Courses

O General Courses

All the students attend all these courses.

O LEPL1103	Mathematics and physics on continuous media	Philippe Chatelain (coord.) Nicolas Moës Jean-François Remacle	FR [q1] [30h +30h] [5 Credits]
O LEPL1106	Signals and systems	Julien Hendrickx Luc Vandendorpe	FR [q2] [30h +30h] [5 Credits]
O LEPL1203	Physics III	Jean-Christophe Charlier Jérôme Louveaux Claude Oestges	FR [q1] [30h +30h] [5 Credits]
O LEPL1108	Discrete mathematics and probability	Jean-Charles Delvenne Olivier Pereira	FR [q1] [30h +30h] [5 Credits]
O LEPL1503	Project 3	Olivier Bonaventure (coord.) Benoît Legat	FR [q2] [30h +30h] [5 Credits]
O LEPL1302	Chemistry and Physical chemistry 2	Pascal Jacques (compensates Joris Proost) Hervé Jeanmart	FR [q1] [30h +30h] [5 Credits]
O LEPL1402	Informatics 2	Sébastien Jodogne Ramin Sadre Pierre Schaus	FR [q1] [30h +30h] [5 Credits]

O Language Courses

O English courses

O LANGL1272	English for Engineers 2 *A placement test is organized at the beginning of the annual unit 1 and 2. Depending on the obtained mark, the students follow an adapted course. The students with a mark gretaer or equal to 16/20 keep their mark and could take an additional language course (out of the 180 credits); this additional course will only affect their average mark if credited (mark greater or equal to 10/20)*	Frédéric Doisy Adrien Kefer Marc Piwnik (coord.)	EN [q1] [30h] [3 Credits]

⊠ Dutch courses

⊠ LNEER1500	Interfaculty teaching unit - General and academic Dutch - upper-intermediate level	Valérie Dachy (coord.)	NL [q1] [30h] [3 Credits]

⊠ German courses

⊠ LALLE1300	General German – independent user – threshold	Virginie Godin (coord.)	DE [q1+q2] [90h] [3 Credits]

⊠ Spanish Courses

⊠ LESPA1301	Spanish intermediate level, 1st part (A2-B1.1)	Fernando Juan San Basilio Pardo (compensates Begona Garcia Migura) Alicia Maria Tirado Fernandez (coord.)	ES [q1 or q2] [45h] [3 Credits]
⊠ LESPA1302	Spanish intermediate level, 2nd part (B1.1-B1.2)	Alicia Maria Tirado Fernandez (coord.)	ES [q2] [45h] [3 Credits]

Religion courses for students in exact sciences

The students select one course between:

⊠ LTECO2100	Sociétés, cultures, religions : Biblical readings	Simon Naveau	FR [q1] [15h] [2 Credits]
⊠ LTECO2300	Societies, cultures, religions : Ethical questions	Marcela Lobo Bustamante	FR [q1] [15h] [2 Credits]
⊠ LTHEO2840	Science and Christian faith	Paulo Jorge Dos Santos Rodrigues	FR [q1] [15h] [2 Credits]
⊠ LTECO2200	Societies-cultures-religions : Human Questions	Pedro Dusabamahoro Valinho Gomes	FR [q1] [15h] [2 Credits]

Minor or additional module

Maximum 2 element(s)

FSA1BA - 3RD ANNUAL UNIT

- Mandatory
- Optional
- Not offered in 2026-2027
- Not offered in 2026-2027 but offered the following year
- Offered in 2026-2027 but not the following year
- Not offered in 2026-2027 or the following year
- Activity with requisites
- Open to incoming exchange students
- Not open to incoming exchange students
- [FR] Teaching language (FR, EN, ES, NL, DE, ...)

Click on the course title to see detailed informations (objectives, methods, evaluation...)

Obligatory Courses

General Courses

All the students attend all these courses.

LEPL1109	Statistics and data sciences	Donatien Hainaut Laurent Jacques	FR [q1] [30h +30h] [5 Credits]
LEPL1111	Linear Control	Gianluca Bianchin (coord.) Julien Hendrickx	EN [q2] [30h +30h] [5 Credits] *> French-friendly*

Non-disciplinary Courses

LEPL1804	Sustainable development and transition	David Bol Francesco Contino Patricia Luis Alconero Xavier Marichal Jean-Pierre Raskin	FR [q1] [30h +15h] [3 Credits]

3rd annual unit project

Students choose one of the following projects. This project must correspond to one of their EPL courses. It is also possible to choose the LEPL1511 course or the LSST1001 course instead of one of the projects. These projects remain open on application and selection only.

LEPL1504	Project 4 (in mechanics)	Nicolas Docquier Paul Fisette	FR [q2] [30h +22.5h] [5 Credits]
LEPL1505	Project 4 (in chemistry and physics)	Karine Glinel Thomas Pardoen	FR [q2] [30h +22.5h] [5 Credits]
LEPL1506	Project 4 (in biomedical engineering)	Philippe Lefèvre	FR [q2] [30h +22.5h] [5 Credits]
LEPL1507	Project 4 (in applied mathematics)	Gautier Krings (compensates Julien Hendrickx) Estelle Massart	FR [q2] [30h +22.5h] [5 Credits]
LEPL1508	Project 4 (in electricity)	Christophe Craeye Dimitri Lederer Luc Vandendorpe	FR [q2] [30h +22.5h] [5 Credits]
LEPL1509	Project 4 (in informatics)	Hélène Verhaeghe	FR [q2] [30h +22.5h] [5 Credits]
LEPL1510	Project 4 (in construction)	Pierre Latteur	FR [q2] [30h +22.5h] [5 Credits]
LEPL1511	Project 4 (in business projects creation)	Julien Hendrickx	FR [q2] [30h +22.5h] [5 Credits]

LSST1001	IngénieuxSud	Stéphanie Merle Jean-Pierre Raskin	FR [q1+q2] [30h +22.5h] [5 Credits]

Language Courses

English courses

LANGL1373	English for Engineers 3	Ahmed Adrioueche (coord.) Stéphanie Brabant Dominique François Nicholas Gibbs Ariane Halleux Coline Jacquemin Sandrine Meirlaen Lucille Meyers Charlotte Peters (coord.) Adrien Pham Nevin Serbest Florence Simon	EN [q1] [30h] [2 Credits]

Minor or additional module

Maximum 2 element(s)

FSA1BA - Information

Access Requirements

Decree of 7 November 2013 defining the landscape of higher education and the academic organization of studies.
The admission requirements must be met prior to enrolment in the University.

In the event of the divergence between the different linguistic versions of the present conditions, the French version shall prevail.

SUMMARY

- General access requirements
- Specific access requirements
- Access based on validation of professional experience
- Special requirements to access some programmes

General access requirements

Except as otherwise provided by other specific legal provisions, admission to undergraduate courses leading to the award of a Bachelor's degree will be granted to students with one of the following qualifications :

1. A Certificate of Upper Secondary Education issued during or after the 1993-1994 academic year by an establishment offering full-time secondary education or an adult education centre in the French Community of Belgium and, as the case may be, approved if it was issued by an educational institution before 1 January 2008 or affixed with the seal of the French Community if it was issued after this date, or an equivalent certificate awarded by the Examination Board of the French Community during or after 1994;

2. A Certificate of Upper Secondary Education issued no later than the end of the 1992-1993 academic year, along with official documentation attesting to the student's ability to pursue higher education for students applying for a full-length undergraduate degree programme;

3. A diploma awarded by a higher education institution within the French Community that confers an academic degree issued under the above-mentioned Decree, or a diploma awarded by a university or institution dispensing full-time higher education in accordance with earlier legislation;

4. A higher education certificate or diploma awarded by an Adult Education institution;

5. A pass certificate for one of the entrance examinations organized by higher education institutions or by an examination board of the French Community; this document gives admission to studies in the sectors, fields or programmes indicated therein;

6. A diploma, certificate of studies or other qualification similar to those mentioned above, issued by the Flemish Community of Belgium, the German Community of Belgium or the Royal Military Academy;

7. A diploma, certificate of studies or other qualification obtained abroad and deemed equivalent to the first four mentioned above by virtue of a law, decree, European directive or international convention;

Note:

Requests for equivalence must be submitted to the Equivalence department (Service des équivalences) of the Ministry of Higher Education and Scientific Research of the French Community of Belgium in compliance with the official deadline.

The following two qualifications are automatically deemed equivalent to the Certificate of Upper Secondary Education (Certificat d'enseignement secondaire supérieur – CESS):

- European Baccalaureate issued by the Board of Governors of a European School,

- International Baccalaureate issued by the International Baccalaureate Office in Geneva.

8. Official documentation attesting to a student's ability to pursue higher education (diplôme d'aptitude à accéder à l'enseignement supérieur - DAES), issued by the Examination Board of the French Community;

9. An equivalence decision regarding the level of studies, issued pursuant to Article 93 of the present Decree.

Specific access requirements

- Access to bachelor programmes for candidates of nationality outside the European Union who are not assimilated to Belgian nationals is subject to the following criteria:
  - not have obtained a secondary education diploma for more than 3 years maximum. Example: for an admission application for the academic year 2026-2027, you must have obtained your diploma during the academic years 2023-2024, 2024-2025 ou 2025-2026. In the French Community of Belgium, the academic year runs from September 14 to September 13
  - not already hold an undergraduate degree
- Candidates, whatever their nationality, with a secondary school diploma **from a country outside the European Union** , must have obtained an average of 13/20 minimum or, failing that, have obtained this average, have passed one year of study in Belgium (for example special Maths / sciences). A non-successful year will not be taken into consideration.

- For any secondary school diploma **from a European Union country** , the admission request must contain the equivalence of your diploma or, at the very least, proof of the filing of the equivalence request with the Wallonia-Brussels Federation (French Community of Belgium). For any information relating to obtaining an equivalence, please refer to the following site.
- For any secondary school diploma **from a country outside the European Union** , the admission application must contain the equivalence of your diploma issued by the Wallonia-Brussels Federation (French Community of Belgium). If you have a restrictive equivalence for the programme of your choice, in addition of it, you **must** have either the DAES or a certificate of successful completion of the examination giving access to 1 st cycle studies when you submit your application

Access based on validation of professional experience

Admission to undergraduate studies on the basis of accreditation of knowledge and skills obtained through professional or personal experience (Accreditation of Prior Experience)

Subject to the general requirements laid down by the authorities of the higher education institution, with the aim of admission to the undergraduate programme, the examination boards accredit the knowledge and skills that students have obtained through their professional or personal experience.

This experience must correspond to at least five years of documented activity, with years spent in higher education being partially taken into account: 60 credits are deemed equivalent to one year of experience, with a maximum of two years being counted. At the end of an assessment procedure organized by the authorities of the higher education institution, the Examination Board will decide whether a student has sufficient skills and knowledge to successfully pursue undergraduate studies.

After this assessment, the Examination Board will determine the additional courses and possible exemptions constituting the supplementary requirements for the student's admission.

Special requirements to access some programmes

- Admission to **undergraduate studies in engineering: civil engineering and architect**

  Pass certificate for the special entrance examination for undergraduate studies in engineering: civil engineering and architect .

  Admission to these courses is always subject to students passing the special entrance examination. Contact the faculty office for the programme content and the examination arrangements.
- Admission to **undergraduate studies in veterinary medicine**

  Admission to undergraduate studies in veterinary medicine is governed by the Decree of 16 June 2006 regulating the number of students in certain higher education undergraduate courses (non-residents) .
- Admission to **undergraduate studies in physiotherapy and rehabilitation**

  Admission to undergraduate studies in physiotherapy and rehabilitation is governed by the Decree of 16 June 2006 regulating the number of students in certain higher education undergraduate courses (non-residents).
- Admission to **undergraduate studies in psychology and education: speech and language therapy**

  Admission to undergraduate studies in psychology and education: speech and language therapy is governed by the Decree of 16 June 2006 regulating the number of students in certain higher education undergraduate courses (non-residents) .
- Admission to **undergraduate studies in medicine and dental science**

  Admission to undergraduate studies in medecine and dental science is governed by the Decree of 16 June 2006 regulating the number of students in certain higher education undergraduate courses (non-residents).

  Note: students wishing to enrol for a **Bachelor's degree in Medicine** or a **Bachelor's degree in dental science** must first sit an aptitude test (fr) .
- Access to **Bachelor of Science in Business Engineering**

  The Bachelor of Science in Business Engineering is a joint program organised by KU Leuven and UCLouvain Saint-Louis Bruxelles. In order to register, all candidate must first submit an application via the KU Leuven admission platform . The conditions of access to this programme are specific.
- Access to **Bachelor in Droit – Rechten – Laws**

  The Bachelor in Droit – Rechten – Laws is a joint program organised by KU Leuven and UCLouvain Saint-Louis Bruxelles. In order to register, all candidate must first submit an application via the KU Leuven admission platform . The conditions of access to this programme are specific.

Teaching method

Les étudiant·e·s bacheliers ingénieur civil se voient proposer un programme basé sur la "pédagogie active" qui les amène à prendre une part active dans la gestion de leur formation. Des dispositifs pédagogiques variés sont mis en place chaque année de manière collégiale par les titulaires de cours et en collaboration avec la cellule de coordination pédagogique, et comportent des cours magistraux, des APP (apprentissages par problèmes et par projets), des séances d'exercices, des travaux individuels et de groupe.

Ces dispositifs placent les étudiant·e·s au centre de leurs apprentissages et visent à leur faire acquérir l'ensemble des compétences, des attitudes génériques (c'est-à-dire transversales aux champs disciplinaires) nécessaires pour mener à bien les études d'ingénieur civil et pour entreprendre une carrière professionnelle. Cette méthodologie est définie en cohérence avec les acquis d'apprentissage visés du programme de bachelier.

Les activités proposées au sein des enseignements permettent aux étudiant·e·s de découvrir ou d'exploiter des notions connues mais retravaillées dans un contexte neuf, d'engranger des acquis méthodologiques allant de pair avec un travail d'intégration, d'approfondissement et d'enrichissement des connaissances. Les étudiant·e·s sont initié·e·s au travail coopératif en groupe, à la gestion de leurs apprentissages, à la communication orale et écrite,...

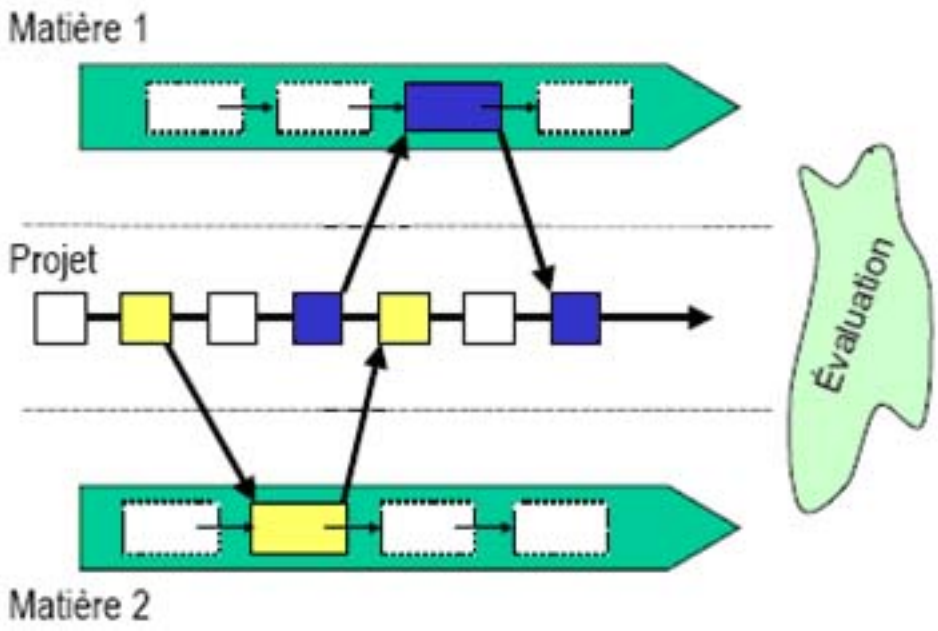
Semaine de lancement S0 (P0)

Pour aborder les objectifs de formation méthodologique dès le début des études, la première semaine du premier bloc annuel du programme de bachelier est une semaine de lancement dénommée P0 présentant une organisation particulière. Les objectifs poursuivis durant cette semaine sont :

- Accueil des étudiant·e·s dans la Faculté ;
- Découverte de l'environnement universitaire et facultaire du site de Louvain-la-Neuve ;
- Initiation méthodologique à certains aspects du travail en équipe, de l'apprentissage par problèmes et par projets (APP).

Apprentissage par projets

Les projets du programme de bachelier visent à intégrer différentes matières du quadrimestre dans une même réalisation. Il ne s'agit donc pas de projets d'application des connaissances acquises précédemment, mais de projets d'apprentissage en interaction permanente avec les disciplines enseignées en parallèle suivant le modèle ci-après :



Apprentissage par problèmes

Au sein des différentes disciplines, des projets motivantes, actuels et interpellants sont proposées aux étudiant·e·s qui ne possèdent cependant pas toujours les compétences nécessaires pour y répondre. Ils nécessitent et amènent donc l'étudiant·e à travailler en groupe, à collaborer et à effectuer des recherches scientifiques, à planifier son travail et à s'organiser.

Ces deux types de situations problèmes coexistent et se complètent : le problème (disciplinaire et de courte durée) et le projet (plurisdisciplinaire et se déroulant sur un quadrimestre).

Evaluation

The evaluation methods comply with the Academic regulations and procedures . More detailed explanation of the modalities specific to each learning unit are available on their description sheets under the heading "Learning outcomes evaluation method".

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.

Possible trainings at the end 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 one of the specialization tracks followed (otherwise prerequisites could be required)

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.

The Ecole Polythechnique de Louvain offers ten different orientations for theses studies :

- Master [120] in Civil Engineering
- Master [120] in Chemical and Materials Engineering
- Master [120] in Physical Engineering
- Master [120] in Electrical Engineering
- Master [120] in Electro-mechanical Engineering
- Master [120] in Mechanical Engineering
- Master [120] in Computer Science and Engineering
- Master [120] in Mathematical Engineering
- Master [120] in Biomedical Engineering
- Master [120] in Data Science Engineering
- Master [120] in Energy Engineering

Contacts

Curriculum Management

Entity

Structure entity	SST/EPL/BTCI
Denomination	(BTCI)
Faculty	Louvain School of Engineering (EPL)
Sector	Sciences and Technology (SST)
Acronym	BTCI
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