SINF1BA - Introduction

Introduction

Introduction

Computer science, or more generally information and communications technology (ICT), is everywhere; everyone uses computers/ smartphones/… to communicate, work, study, play, travel, and manage. More and more activities are assisted by computers. SMEs, public services, education world, associations, leisure, in two words the world, has a growing need for computer scientists who are competent, creative and motivated. We cannot count the daily-used IT systems: Internet, mobile, social networks, robotics, home automation, e-commerce, search engines, business management, hospitals, road safety, exhibitions and management of theatres or museums, transport, energy supply and many other areas rely on IT. There will be more and more areas impacted by ICT tomorrow and more complex applications will be needed.

With the bachelor's degree in computer science, you will

• understand in depth the foundations for the design and implementation of simple computer applications;

• master the basic underlying computer technologies;

• have developed your ability for reasoning and abstraction, required to design future applications;

• master the mathematical techniques involved in such reasoning;

• get the luggage necessary for the future "master in computer science," oriented toward the development of complex software applications.

Your profile

You

• have a taste for problem solving;

• are pushed by a great curiosity;

• overflow of creativity and imagination;

• are a head for abstraction, analysis and synthesis;

• have a methodical mind and show rigor in your reasoning;

• are good for human contact, organization of teamwork, leadership, etc.

Following a strong mathematical option during high school and feeling an attraction to science or economics are assets.

Your future job

During his career, the computer scientist will flourish and evolve in one or more of the following profiles:

• The designer identifies the needs of the future user and determines the technical means useful to fulfil these needs. He is able to speak "the language" of the customer, it has a fairly broad culture to interact successfully with non-computer experts. He masters computer technology to identify the best solution. It builds a quality architecture for this solution.

• The achiever is able to translate the indications and guidelines produced by the designer in computer components. He analyses in detail some components of the architecture, he programs, tests, deploys these components into an integrated solution. His technical expertise is very sharp.

• The IT project manager takes care of the smooth running of the project; he is responsible for the completion of the tasks associated with these systems, their safety, planning their development. As the designer, it has qualities in terms of human contacts, a good general education and strong technical skills.

Your programme

The bachelor has a compulsory part covering different disciplines

• computer science ;

• mathematics ;

• economics, management and social sciences;

• English;

• sciences and technology.

You choose a minor to complete your training. This option allows to open your study program to domains you are interested outside the computer science or to deepen some fields closer to the mandatory part of the program (computer science or management).

Once bachelor, you will continue your training by the Master in Computer Science.

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4. communicate effectively in French orally and in writing to carry out the projects, use cleverly technical documents in English and understand the information transmitted orally in English

• Identify the needs of the customer who has a basic computer science culture: questioning, listening and understanding the client, keeping in mind the existence of non-technical dimensions;

• Argue and convince while adapting his communication to the language of the interlocutors: colleagues, clients, superiors;

• Communicate in graphical and schematic form, interpret a diagram, present the results of a task, structuring information;

• Read, analyse and use technical documentation (diagrams, tutorials, ...);

• Prepare written documents taking into account contextual requirements and social conventions (manual, documentation, project report);

• Make a persuasive oral presentation using modern communication techniques.

5. demonstrate both rigorous, open and critical mind in his work

• Apply the standards of its discipline (terminology, quality standards in terms of documentation and programming methods, ...);

• Demonstrate critical attitude with respect to a technical solution, checking robustness and relevance in its context of use;

• Develop autonomously learning to remain competent in his field.

Programme structure

The student who enrols in the bachelor's programme in Computer Science will follow a programme of 180 credits, usually spread over 3 years. This programme includes a major of 150 credits and a minor of 30 credits.

- The major consists of a set of polyvalent courses of 79 credits in total and a set of Computer Science courses of 71 credits. The general polyvalent formation comprises a solid training in Economics, Management and Human Sciences (28 credits) as well as in Mathematics (32 credits).
- The major will be supplemented by a minor or an additionnal module in computer sciences of 30 credits, intended for students who wish to deepen their training in the discipline.
- Regarding the minor, UCL university proposes a large variety of minors in sciences (statistics, scientific culture,...) as well as in human sciences (philosophy, economy,...). For more details, please consult the following web-page : https://uclouvain.be/fr/catalogue-formations/faculte-2024-epl.html. Whereas, some minors are freely accessible by any student, some others are subject to certain accessibility conditions. When a student would like to access a minor but encounters certain problems, he or she is advised to contact his or her student counsellor.

The principal subjects addressed in this programme are :

- Computer Science - 71 credits
- Mathematics- 32 credits
- Economics, Management and Human sciences - 28 credits
- Science and Techniques - 10 credits
- Religious Studies - 2 credits
- English - 7 credits
- Minor - 30 credits

SINF1BA Programme

Detailed programme by subject

⬤ Mandatory
✖ Optional
△ Not offered in 2024-2025
⊘ Not offered in 2024-2025 but offered the following year
⊕ Offered in 2024-2025 but not the following year
△ ⊕ Not offered in 2024-2025 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...)

Year
🟨1 2 3

	Year
	1 2 3

⚙ English Courses (7 credits)

				Year 1	2	3
⚙ LANGL1181	English for Computer Scientists I *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)*	Jean-Luc Delghust (coord.) Lucille Meyers (coord.)	EN [q1] [12h] [2 Credits] 🌐	x		
⚙ LANGL1282	Anglais pour informaticiens II 🔶 *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)*	Jean-Luc Delghust Adrien Kefer Charlotte Peters (coord.) Marc Piwnik (coord.)	EN [q1] [30h] [3 Credits] 🌐		x	
⚙ LANGL1383	English for Computer Scientists III	Ahmed Adrioueche (coord.) Nicholas Gibbs Ariane Halleux Philippe Neyt Charlotte Peters (coord.)	EN [q1] [30h] [2 Credits] 🌐			x

⚙ Dutch courses

				Year 1	2	3
⚙ LNEER1300	General and academic Dutch - intermediate level	Hilde Bufkens (coord.) Isabelle Demeulenaere (coord.)	NL [q2] [30h] [2 Credits] 🌐	x		
⚙ LNEER1500	Interfaculty teaching unit - General and academic Dutch - upper-intermediate level	Valérie Dachy (coord.) Isabelle Demeulenaere (coord.)	NL [q1 or q2] [30h] [3 Credits] 🌐		x	

⚙ German courses

				Year 1	2	3
⚙ LALLE1101	German beginner's level 1st part (0-A1)	Fanny Desterbecq (compensates Ann Rinder) Mélanie Mottin (compensates Ann Rinder)	DE [q1 or q2] [45h] [2 Credits] 🌐	x		
⚙ LALLE1102	German beginner's level 2nd part (A1 - A2)	Caroline Klein (coord.)	DE [q2] [45h] [2 Credits] 🌐	x		

LINFO1115

○ Computer science training (71 credits)

En bloc annuel 3, l'étudiant doit choisir l'un des trois projets suivants dans son programme de 180 crédits en bachelier: LEPL1509, LEPL1511 ou LSST1001. Les projets LEPL1511 et LSST1001 sont ouverts sur candidature et après sélection uniquement.

○ LINFO1115	Reasoning about a highly connected world: graph theory, game theory and networks	Peter Van Roy	EN [q2] [30h+30h] [5 Credits]

List of available minors

Besides the core study, students will choose:

• the Additionnal module in Computer Science

• or one of the minors in the list below.

> Minor in Law (access)   *[en-prog-2024-minadroi]*
> Minor in Urban Architecture   *[en-prog-2024-minarch]*
> Minor in Information and Communication   *[en-prog-2024-mincomu]*
> Minor in Culture and Creation   *[en-prog-2024-mincucrea]*
> Minor in Scientific Culture   *[en-prog-2024-mincults]*
> Minor in Development and Environment   *[en-prog-2024-mindenv]*
> Minor : Issues of Transition and Sustainable Development (*)   *[en-prog-2024-mindd]*
> Minor in Economics   *[en-prog-2024-minecon]*
> Minor in European Studies   *[en-prog-2024-mineuro]*
> Minor in Gender Studies   *[en-prog-2024-mingenre]*
> Minor in Geography   *[en-prog-2024-mingeog]*
> Minor in Management (ESPO students)   *[en-prog-2024-minagest]*
> Minor in Human and Social Sciences   *[en-prog-2024-minhuso]*
> Minor in Philosophy   *[en-prog-2024-minfilo]*
> Minor in entrepreneurship (*)   *[en-prog-2024-minmpme]*
> Minor in Musicology   *[en-prog-2024-minmusi]*
> Minor in Law (openness)   *[en-prog-2024-minodroi]*
> Additional module in computer science   *[en-prog-2024-appsinf]*
> Minor in Statistics, Actuarial Sciences and Data Sciences   *[en-prog-2024-minstat]*
> Minor in Dutch language and culture (*)   *[en-prog-2024-minneerl]*
> Minor in Literary Studies   *[en-prog-2024-minlitter]*
> Minor in Linguistics   *[en-prog-2024-minlingui]*

(*) This programme is the subject of access criteria

SINF1BA - 1ST ANNUAL UNIT

○ Mandatory
⊗ Optional
△ Not offered in 2024-2025
⊘ Not offered in 2024-2025 but offered the following year
⊕ Offered in 2024-2025 but not the following year
△ ⊕ Not offered in 2024-2025 or the following year
🟨 Activity with requisites
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[FR] Teaching language (FR, EN, ES, NL, DE, ...)

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

○ *Core study*

○ **General and training**

○ **Mathematics**

○ LINFO1111	Analysis	Pierre-Antoine Absil François Glineur	[FR]

⌘ German courses

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

SINF1BA - 2ND ANNUAL UNIT

⬤ Mandatory
⊗ Optional
△ Not offered in 2024-2025
⊘ Not offered in 2024-2025 but offered the following year
⊕ Offered in 2024-2025 but not the following year
△ ⊕ Not offered in 2024-2025 or the following year
🟨 Activity with requisites
🌐 Open to incoming exchange students

SINF1BA - 3RD ANNUAL UNIT

○ Mandatory
� Optional
△ Not offered in 2024-2025
⊘ Not offered in 2024-2025 but offered the following year
⊕ Offered in 2024-2025 but not the following year
△ ⊕ Not offered in 2024-2025 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...)

○ *Core study*

○ **General and training**

○ **Mathematics**

○ LEPL1109	Statistics and data sciences

� LEPL1509	Project 4 (in informatics) 🟨	

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SINF1BA - Information

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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 centre;

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.

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 2024-2025, you must have obtained your diploma during the academic years 2021-2022, 2022-2023 ou 2023-2024. 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 1st 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.

- Secrétaire du Jury: Cristel Pelsser
- Président du Jury: Claude Oestges

Useful Contact(s)

- Secrétariat: Cindy De Saeger
- Conseillère aux études en sciences informatiques: Cécile Lombart

Date: Feb 4, 2025