



SINF1BA

## SINF1BA - Introduction

### Introduction

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#### 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.

## SINF1BA - Teaching profile

### Learning outcomes

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#### General objectives

This bachelor's programme offers a general approach to computer science in the context of basic university training. The bachelor's programme leads to the title of "Bachelor of Computer Science" and upon completion of this first cycle of studies, the student will be granted access to the master's programme in Computer Science.

This university-level training in computer science prepare future specialists capable of creating and elaborating complex and efficient computing systems that satisfy the numerous and ever-increasing needs in our society. It thus trains "software creators" rather than pure programmers. More specifically, the bachelor's programme in computer science aims at the acquisition of the following technical competences and skills :

- Gaining an in-depth understanding of the basic essentials needed to design and implement simple software systems;
- Mastering the underlying foundations of computer science;
- Developing the reasoning and abstraction abilities necessary for the creation of such systems;
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- 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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English Courses (7 credits)

<p>○ LANGL1181</p>	<p><b>English for Computer Scientists I</b>  <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 greater 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)</i></p>	<p>Jean-Luc Delghust (coord.)                      Lucille Meyers (coord.)</p>	<p>EN [q1] [12h] [2 Credits]</p>	<p>x</p>
<p>○ LANGL1282</p>	<p><b>Anglais pour informaticiens II</b>  <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 greater 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)</i></p>	<p>Jean-Luc Delghust                      Adrien Kefer                      Charlotte Peters (coord.)                      Marc Pivnik (coord.)</p>	<p>EN [q1] [30h] [3 Credits]</p>	<p>x</p>
<p>○ LANGL1383</p>	<p><b>English for Computer Scientists III</b></p>	<p>Ahmed Adriouèche (coord.)                      Nicholas Gibbs                      Ariane Halleux                      Philippe Neyt                      Charlotte Peters (coord.)</p>		

○ LINFO1115

Year

1 2 3

**○ 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

📄 [q2] [30h+30h] [5 Credits]





## Course prerequisites

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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 purposes 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:

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## SINF1BA - 1ST ANNUAL UNIT

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- 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, ...)

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

### o Core study

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#### o General and training

##### o Mathematics

● LINFO1111	Analysis	Pierre-Antoine Absil François Glineur	FR
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### ⌘ German courses

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

### ⌘ Spanish Courses

⌘ LESP1101	Spanish beginner's level 1st part (0-A1)	Begona Garcia Migura Fernando Juan San Basilio Pardo Alicia Maria Tirado Fernandez (coord.)	ES [q1 or q2] [45h] [2 Credits] 🌐
⌘ LESP1102	Spanish (beginner's level) 2nd part (A1 - A2)	Alicia Maria Tirado Fernandez (coord.)	ES [q1 or q2] [45h] [2 Credits] 🌐

### ○ Computer science training

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.

○ LINFO1101	Introduction to programming	Kim Mens Siegfried Nijssen Charles Pecheur	ES [q1] [30h +30h] [5 Credits] 🌐
○ LINFO1103	Introduction to algorithms	Pierre Dupont	ES [q2] [30h +30h] [5 Credits] 🌐
○ LINFO1002	IT projects 2	Tom Barbette	ES [q2] [30h +30h] [5 Credits] 🌐
○ LINFO1001	IT projects 1	Cristel Pelsser	ES [q1] [30h +30h] [6 Credits] 🌐





## SINF1BA - 3RD ANNUAL UNIT

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- 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, ...)

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

### o Core study

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#### o General and training

##### o Mathematics



⊗ LEPL1509 Hélène Verhaeghe	Project 4 (in informatics) 📄	Hélène Verhaeghe	18 [q2] [30h +22.5h] [5 Credits] 🌐
⊗ LSST1001	IngénieursSud	Stéphanie Merle Jean-Pierre Raskin	18 [q1+q2] [15h +45h] [5 Credits] 🌐
⊗ LEPL1511	Project 4 (in business projects creation)		





- 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<sup>st</sup> 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 medicine 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](#)

