



VRIJE  
UNIVERSITEIT  
BRUSSEL

Joint programme with

A close-up portrait of a young man with dark, wavy hair and a light beard, looking directly at the camera. The image is partially obscured by a white diagonal shape that serves as a background for the text.

**MASTER  
OF SCIENCE IN  
ELEC  
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ENGI  
NEERING**

[www.vub.ac.be/electromechanical-engineering](http://www.vub.ac.be/electromechanical-engineering)  
[www.bruface.eu](http://www.bruface.eu)

**120  
ECTS**

**2018-2019**

# WHY VUB

## VUB education delivers strong individuals, critical minds and world citizens

Vrije Universiteit Brussel (VUB) offers high-quality English-taught programmes, supported by outstanding research. Being a student at VUB means learning in an open atmosphere of tolerance and diversity, as well as growing into an independent and critical-thinking individual.

All fields of study are offered on four student-friendly campuses in the cosmopolitan city of Brussels. At VUB, students have easy access to their lecturers and assistants. Faculty members are available and open to answer questions; small group workshops are used to ensure close interaction and hands-on experience.

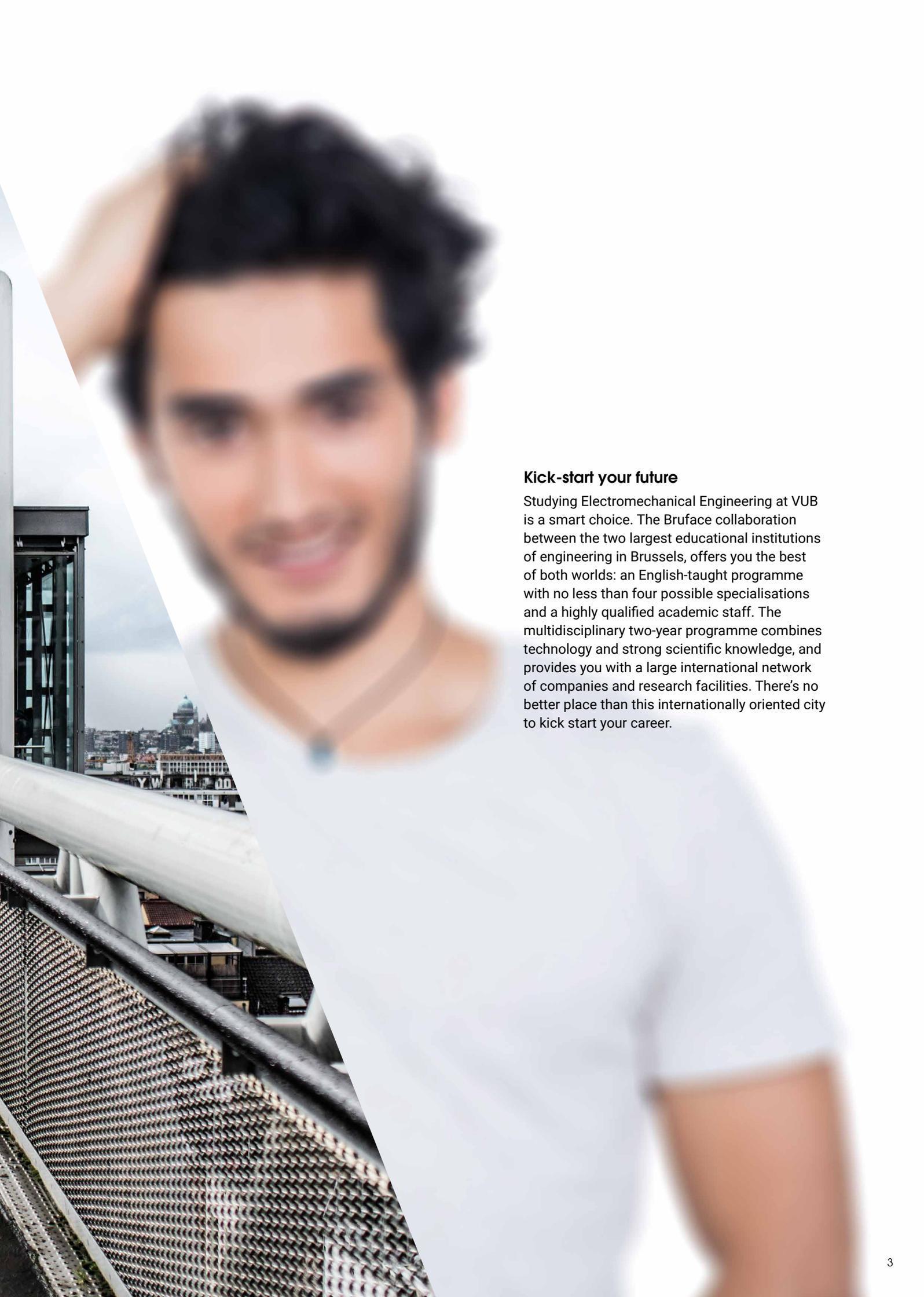
VUB is a dynamic and modern university with almost two centuries of history. We welcome 15.000 students, 21% of which are international students from more than 120 different countries.

## The basis of our academic success

Vrije Universiteit Brussel was founded on the principle of 'free inquiry' as formulated by the French mathematician and philosopher of science Henri Poincaré (1854-1912): *"Thinking must never submit itself, neither to a dogma, nor to a party, nor to a passion, nor to an interest, nor to a preconceived idea, nor to anything whatsoever, except to the facts themselves, because for it to submit to anything else would be the end of its existence."*

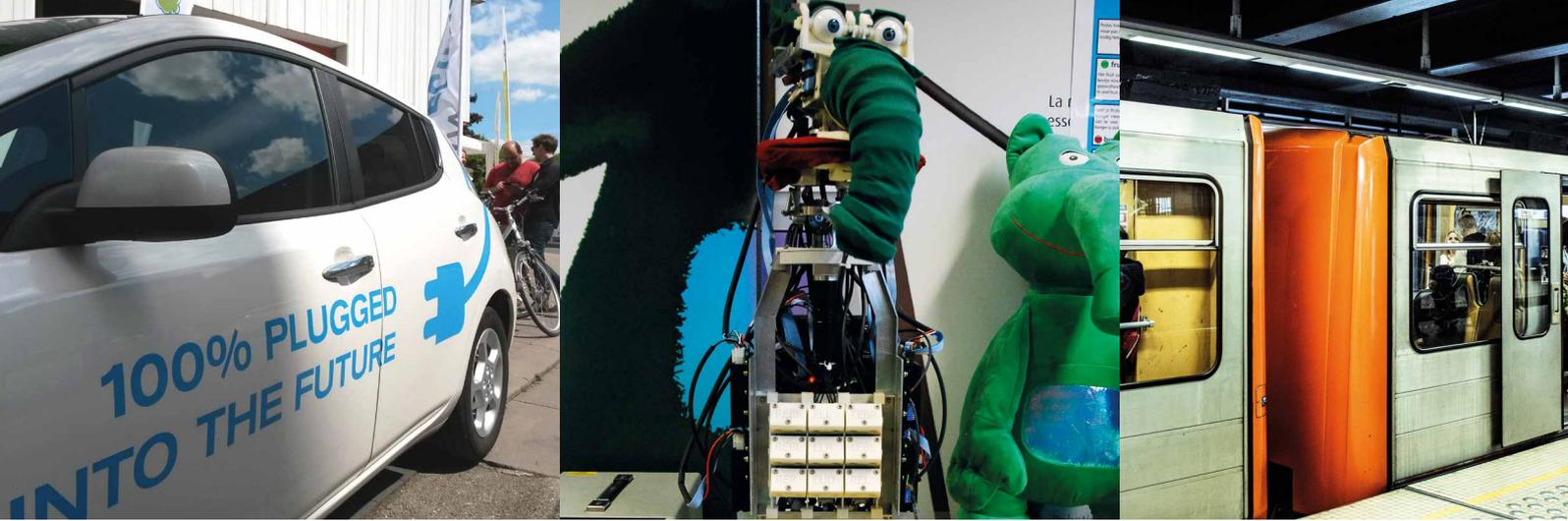
Personal growth, with a positive and critical attitude, in addition to a sense of responsibility and open-mindedness are characteristics that you will encounter in everyone at the university: from professors and researchers to students and staff members. It lies at the heart of our academic success.





### **Kick-start your future**

Studying Electromechanical Engineering at VUB is a smart choice. The Bruface collaboration between the two largest educational institutions of engineering in Brussels, offers you the best of both worlds: an English-taught programme with no less than four possible specialisations and a highly qualified academic staff. The multidisciplinary two-year programme combines technology and strong scientific knowledge, and provides you with a large international network of companies and research facilities. There's no better place than this internationally oriented city to kick start your career.



# MASTER OF SCIENCE IN ELECTROMECHANICAL ENGINEERING

## Multidisciplinary training with an in-depth specialisation

The two-year Master of Science in Electro-Mechanical Engineering integrates the study of electrical and mechanical engineering and research. This unique combination encourages a wide perspective, offering you the ability to bridge the gap between these two fields later on in your professional career.

The multidisciplinary programme is complemented with an in-depth specialisation in one of four majors: Aeronautics, Energy, Mechatronics-Construction or Vehicle Technology and Transport. The specialisation in one of these disciplines starts in the first year, setting you off with a strong set of skills in the chosen field. As a graduate of this programme, you benefit from a compromise between a broad electromechanical engineering education that prepares you for work in design and management and a specialisation in a particular discipline.

The programme guarantees a high level of education thanks to the well-qualified academic staff and their link with specialists from research institutes and the industry. As a result, our graduates are known for their immediate wide-ranging employability.

## Combine scientific and technical skills

Scientific and technological efficiency is key in the Master of Science in Electromechanical Engineering. It's an academic programme, which implies a close link with scientific research in the related fields. The programme offers a balance between scientific and technological knowledge, skills that are useful for both professional use and scientific research.

And, the programme provides you with plenty of other skills, from management techniques, to communication and social skills. In all situations, we foster independence, creativity, inventiveness and critical reflection. These skills will help you shape the technology of tomorrow.

The programme offers the opportunity to put these skills into practice through a two- or three-month internship at the beginning of the second year. It's non-compulsory, but the internship gives you a good opportunity to make contact with the industry in a national or international context.

## Experts from both (or more) worlds

The programme is a Bruface collaboration between the two largest education institutes of engineering in Brussels: the Vrije Universiteit Brussel and the Université Libre de Bruxelles. Together we offer you the best of both worlds: a fully English-taught master programme, highly qualified academic staff with a large international network in the field, research facilities and expertise from the two universities, and high-level education in Brussels, an internationally oriented city. And on top of that, you'll receive a joint diploma from VUB and ULB.

Fancy an international career? Our collaboration with T.I.M.E. (Top Industrial Managers for Europe), a network of polytechnic schools and universities in Europe, gives you the opportunity to study abroad. There are possible destinations inside and outside Europe, including Japan, China and Australia. Broaden your horizons personally as well as professionally, and graduate with a degree from both VUB/ULB and the receiving institution.



## Postgraduate in Innovation and Entrepreneurship.

The Postgraduate Programme in Innovation and Entrepreneurship in engineering is a joint initiative of the faculties of the five Flemish universities that offer programmes in industrial sciences, biosciences, bioengineering and engineering sciences. There is a clear demand from businesses, organisations and institutes of higher education for a smoother transition from education to the job market. The innovation projects aim to ensure that students are better prepared for the practice of their profession. The postgraduate programme allows students to gain practical experience in their field or as entrepreneurs. Aside from technical engineering skills, the programme mainly focuses on the development of innovation competences and enterprising, innovative and professional skills.

| MASTER YEAR 1                    | ECTS |
|----------------------------------|------|
| Control System Design            | 5    |
| Design Methodology               | 5    |
| Piston Engines                   | 5    |
| Electrical Drives                | 5    |
| Project Master 1                 | 5    |
| Turbomachinery                   | 5    |
| <b>Choice of 1 major:</b>        |      |
| Aeronautics                      | 30   |
| Energy                           | 30   |
| Mechatronics-Construction        | 30   |
| Vehicle Technology and Transport | 30   |

| MASTER YEAR 2                    | ECTS      |
|----------------------------------|-----------|
| <b>Choice of 1 major:</b>        |           |
| Aeronautics                      | 36        |
| Energy                           | 36        |
| Mechatronics-Construction        | 36        |
| Vehicle Technology and Transport | 36        |
| <b>Master Thesis</b>             | <b>24</b> |

*The programme is subject to change.*

**Check [www.vub.ac.be/en](http://www.vub.ac.be/en) for the latest information about the programme.**

*ECTS (European Credit Transfer System):*

*1 credit represents 25-30 hours of study activity.*

## FOUR MAJORS

### Aeronautics

This programme studies the versatile aspects of state-of-the-art technology in aeronautics and spin-off possibilities in other industries. The goal is to give students insight into all aspects of the design, construction, exploitation and maintenance of aircrafts.

### Energy

This major focuses on the current and future issues associated with sustainable energy supplies. It covers all aspects from the primary energy sources to the smart energy carriers being used in industry, transportation, and domestic applications. By the end of this program, students will be able not only to understand the main challenges in the energy supply and renewable energy sources but also to see the important links between energy policies and energy-savings.

### Mechatronics-Construction

This major aims to provide students with the necessary tools for developing integrated electromechanical systems and stand-alone machines (sensors, actuators, controllers and mechanical systems). It enables students to become familiar with methods for designing and constructing machines and structures, as well as with modern design and manufacturing techniques, including micro-manufacturing and micro-systems.

### Vehicle Technology and Transport

Transportation systems, whether they're designed for humans or goods, require specialised engineers for their design, control and maintenance. This major is devoted to the different aspects of land-based means of transportation: structure, materials, sources of energy, propulsion, electronics, and lighting. There are also courses devoted to rail infrastructure and logistics, with a focus on sustainable mobility.

# STUDY IN BRUSSELS

## STUDY AT THE HEART OF THE EU

Brussels appeals to a lot of international students, and each year about 70.000 students seek higher education here. This shouldn't come as a surprise. Belgian education is internationally renowned for its high standard, and Brussels is a multicultural cosmopolitan city. It's a hub for cultural activities with numerous international institutions, companies and embassies.

Brussels is the sixth leading European business city, according to property consultants Cushman & Wakefield. This means studying Electromechanical Engineering here opens up a world of opportunities for your career. The short travel times by high-speed train to cities like Amsterdam or London (two hours) or Paris (90 minutes) place Brussels at the heart of Europe. There's no better location for you to study and start your career.

## BRUFACE: BEST OF BOTH WORLDS

Bruface, short for Brussels Faculty of Engineering, is a cooperation of the Vrije Universiteit Brussel (VUB) and Université Libre de Bruxelles (ULB). The two universities in the city of Brussels join forces to offer English-taught programmes in the field of engineering.

Bruface offers you the opportunity to study in an international context and to make use of the best facilities of both universities. But most of all, this cooperation allows for expertise of both universities to be at your disposal. High-level education is within reach, at a reasonable tuition fee. At the end of the programme, you even take home a joint degree from VUB and ULB.

## NUMEROUS FIELDS OF EXPERTISE

Expertise from VUB and ULB is gathered to offer you the best education and research possibilities. Therefore, a broad variety of fields of research is at your feet. Our research groups boast a large portfolio with Belgian, European and international projects on, for example, robotics (including step rehabilitation robots and robot-enhanced therapy,...), numerical simulations, renewable energy and biomass, biomechanics, and Unmanned Aerial Vehicles.



100 students in master year 1



Full English-taught programme



Joint degree from 2 universities



*"The VUB is my window to the world, but also a safe home."*

Bram Vanderborght  
professor of robotics

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## ADMISSION CRITERIA

Admission is based on the review of each application: proof of meeting academic and language requirements, personal motivation, etc.

### LANGUAGE REQUIREMENTS

Prospective students can provide proof of sufficient knowledge of English as language of instruction by meeting one of the following criteria:

- having successfully completed one of the following language proficiency tests:
  - TOEFL: minimum level: 213 for the computer-based test (CBT); 72 for the internet-based test (IBT); 550 for paper-based test
  - TOEIC: minimum level: 785
  - IELTS: minimum level academic module 6
  - CAE: minimum grade B
  - CPE: minimum grade C
  - ITACE for Students certificate with ERK/CEFR score B2
  - Cambridge English First (FCE)
  - Cambridge English: Business Vantage (BEC Vantage)
  - Cambridge Michigan ECCE
  - Trinity College London: ISE II, GESE Grade 7-9; or ALTE Q mark
  - The Pearson Test of English General (PTE General): minimum level 3
  - The Pearson Test of English Academic (PTE Academic): minimum level 59

- having successfully completed at least one year of secondary education with English as language of instruction, or having successfully completed secondary school in a Belgian institution;
- having successfully completed programme units in higher education with a minimum of 54 ECTS-credits where English was the language of instruction.

For more details on admission requirements and application: [www.bruface.eu](http://www.bruface.eu)

### SPECIFIC ADMISSION CRITERIA

Bachelors in Engineering with a diploma from a Flemish university have direct access to the programme.

Admission of students from other institutions is evaluated through a complete application file. Students with a bachelor in the same field of study have direct access after the evaluation of their application file. Holders of another engineering degree need to be approved by the curriculum council.

### Application deadline

Prospective students are advised to apply as soon as possible, even if they have not yet obtained their degree. Applications need to be submitted only through our website [www.bruface.eu](http://www.bruface.eu)

- Students who require a visa (non-EU/EEA nationals) need to submit their pre-application before March 24th
- Students who do not require a visa must submit their pre-application before September 12th
- Note: if the proof of English proficiency or APS certificate is not ready before the deadline, you can always submit it later instead of missing the deadline

### Tuition fees

Students register at Vrije Universiteit Brussel or at Université Libre de Bruxelles according to specific regulations.

Students pay the tuition fee at the institution at which they enrol, in agreement with the institution's legal requirements. The tuition fee for the non-EU students is recalculated yearly and jointly by both institutions, taking into account the legislation in both regions. Indication of tuition fee: 800 - 3000 euro per year. A detailed overview of the tuition fees and the regulations can be found on [www.bruface.eu](http://www.bruface.eu)

### Contact

[www.bruface.eu](http://www.bruface.eu)

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