




VRIJE
UNIVERSITEIT
BRUSSEL

Joint programme with

A close-up, high-angle photograph of a young woman with light brown hair and blue eyes, looking directly at the camera. The image is partially obscured by a diagonal white line that separates the text area from the right side of the page.

**MASTER
OF SCIENCE IN**
**ARCHI
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NEERING**

www.vub.ac.be/architectural-engineering

**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 and 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 count 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.





Architecture and construction engineering intertwined

The Master's programme in Architectural Engineering combines structural engineering and architectural studies. The programme trains you to design large-scale architectural projects that add value to complex, mainly urban, situations.

You'll be working in a design studio, where a variety of aspects related to your task come together: analysing a historical, architectural and urban context, setting up a programme and designing a pleasant building complex with adequate materials, an efficient structure equipped with sustainable techniques. This synergy is to be expected, given the complex and advanced nature of architectural design at Master level. The university manages the interaction between these disciplines and combines it with a scientific attitude. This means you'll receive a scientific education of a high level, that prepares you for the job market.



MASTER OF SCIENCE IN ARCHITECTURAL ENGINEERING

Harvesting synergy between engineering and architecture

The master programme in Architectural Engineering trains designers to harvest the synergy between two disciplines: engineering and architecture. The programme provides students with an advanced level of knowledge and insight, and encourages them to be creative and inventive when integrating their knowledge into a complex architectural design. Our goal is to combine the challenges and inventiveness of the modern building industry with a flair for originality and creativity.

All of this is combined with management training, aimed to thoroughly train students to lead architecture projects. An architectural engineer designs complex, sustainable buildings and large-scale architectural projects, and helps shaping the world around us. We offer this programme with cutting-edge, scientific research integrated, optimally preparing you for a wide range of careers.

Focus on construction

The Master in Architectural Engineering focuses specifically on the central position of the construction process. In addition, it highlights the role of the project supervisor, a person capable of running a complex building project. The teaching programme specifically focuses on the skills required to design, coordinate and carry out large-scale projects in a multidisciplinary environment, taking an advanced technical and scientific approach and following the principles of sustainable design and building.

Job opportunities

Architectural engineers have access to specific job opportunities, distinct from those open to architects and civil engineers. Large construction projects require a project leader who is able to integrate and coordinate the aesthetic, programmatic, structural and technical aspects. The evolution of the building industry and the equipment of contemporary architecture projects make this synthesis ever more complex and require an integrated knowledge of heating, ventilation and airconditioning, the physical behaviour of materials and structures and the principles of sustainable building. The programme prepares students to a wide range of job profiles such as:

- architect
- structural engineer
- project manager
- consultant
- employee or executive in an architectural or engineering office
- supervisor of the built heritage
- policy maker for urban planning
- researcher

Studying abroad

The curriculum of the first master year can be replaced by an alternative program of 30 to 60 ECTS at a university abroad. This international mobility offers you extra opportunities to tune the content of your curriculum with international courses, internships and research projects without delaying your study progress. Possible destinations are Milan (Italy), Cottbus (Germany) and Göteborg (Sweden).



MASTER YEAR 1	ECTS
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Required courses	35
Design of Concrete Structures	
Design of Steel Structures	
Parametric Design of Transformable Structures	
Capita Selecta in Architectural Engineering Research	
Energy Performance of Buildings	
Spatial Structures: Design and Analysis	
Structural Renovation Techniques	
Post-war History of Construction and Architecture	
Design Studio Sustainable Design	16
Elective courses	9

MASTER YEAR 2	ECTS
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Required courses, choice of 12 ECTS	
Architectural Engineering and Construction Project Management	4
Low Energy Design for Sustainable Buildings	4
Daylighting in Buildings	4
Design Project Competition	4
Theory of Architecture and Urbanism	4
Master Thesis Architectural Engineering	24
Advanced Design Studio	12
Elective courses	12

*The programme is subject to change.
Check 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.*

PROGRAMME STRUCTURE

The **design studio** takes up almost one quarter of the Master's programme and lies at the heart of the teaching project. The compulsory programme comprises courses in architecture and construction sciences: history and theory of architecture, construction and urbanism, structural engineering, design of building equipment, construction management and training in engineering research methods, which allow for the development of the specific features of this training. The optional courses allow students to specialise in a specific scientific field. The programme is complemented with a Master thesis.

AVAILABILITY OF AN INTERNSHIP EMBEDDED IN A SPECIFIC PEDAGOGICAL FRAMEWORK

The 60-days internship is an opportunity for students to develop their technical and scientific skills through professional experience in the company or external research centre of their choice, in Belgium or abroad. It's a chance to explicitly analyse the organisation of the professional world, to develop soft skills (such as communication and interaction), and improve self-awareness, criticism and reflexivity to be better prepared to evolve professionally.

The internship opens up opportunities for the master thesis, too: this can be carried out with the same company or research institute. However, during training, activities related to the thesis research should be secondary, as the main focus of the internship lies elsewhere.

TEACHING METHODS

The teaching methods combine theory lectures with exercises, seminars, workshops, visits and lab sessions.

BRUFACE: ENGINEER- ING IN BRUSSELS

STUDY IN BRUSSELS

Belgian education is internationally renowned for its high standards. Every year about 70.000 students study in Brussels. It isn't surprising: with its international institutions, companies and embassies, Brussels is the beating heart of Europe. Study in Brussels? In a heartbeat!

BRUFACE

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. Bruface gives you space to breathe, quite literally. The buildings are spread out across two adjacent green campuses. There are modern sports facilities with sports halls, tennis and squash courts, fitness rooms and a swimming pool on site. The student restaurant offers meals and snacks at the self-service counters, while laboratories are all fitted with the most up-to-date equipment.



40 students in master year 1



Full English-taught programme



Joint degree from 2 universities



NUMEROUS FIELDS OF EXPERTISE

Expertise from VUB and ULB is gathered to offer the best education and research possibilities. Our research groups have a large portfolio with Belgian, European and international projects. As a consequence, a wide variety of fields of research is at your fingertips.

SEVEN REASONS TO STUDY AT BRUFACE

- ULB and VUB have excellent quality records
- Ideal student group sizes and excellent student-staff contact
- Reasonable tuition fees and cost of living compared to many large European cities
- All buildings of ULB and VUB campuses are within walking distance
- Green campuses 15 minutes from the city centre (using public transport)
- Brussels is the capital of Europe, a multilingual and multicultural city
- International student population

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

DIRECT ACCESS

Bachelor in Architectural Engineering (VUB)

OTHERS

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 must 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 can only be submitted through our website 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 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 can be found on www.bruface.eu

Contact

www.bruface.eu
www.vub.ac.be/architectural-engineering