MASTER OF SCIENCE IN BIOMEDICAL ENGINEERING

PROGRAMME JOINTLY OFFERED BY GHENT UNIVERSITY, VRIJE UNIVERSITEIT BRUSSEL

120 ECTS CREDITS - LANGUAGE: ENGLISH

The Faculty of Engineering and Architecture (FEA) offers most of its Engineering programmes at Master's level in English. This underlines the international ambition of the faculty, as well as the importance of an international education and multiple language skills for students.

WHAT

The Master of Science in Biomedical Engineering is an interuniversity collaboration between Ghent University and Vrije Universiteit Brussel. Students acquire a solid technical know-how (integrating mathematics, physics, chemistry and life sciences with engineering techniques) to operate in the biomedical sector, while being introduced to the specificities of working for and with the patient and with living matter, and getting to know the perspective of the clinician and all stakeholders in the biomedical and health care industry. Students acquire the necessary research and engineering skills to analyse and solve complex problems independently, and are capable of developing new materials, devices, tools, systems and methods for the early diagnosis, prevention and treatment of disease in order to improve and guarantee society's health care and quality of life. Students are made aware of ethical, socio-economic and sustainability aspects of the biomedical engineering profession and get to know the organisation of our health care system. In the fast-evolving field of biomedical engineering, the Master's programme also stimulates an attitude of live-long learning. This programme delivers academically formed engineers of an outstanding international level, naturally trained to function in a multidisciplinary and international team through the multidisciplinary programme (with lecturers from diverse faculties and research areas) and work on multidisciplinary projects together with international students solving multidisciplinary problem cases in group. Students acquire excellent communication skills in oral and written reporting.

STRUCTURE

The study programme consists of:

- 120 ECTS-credits spread over four twelve-week terms.
- 64 ECTS-credits worth of mandatory course units on established and newly emerging biomedical engineering disciplines.
- 39 ECTS-credits worth of project work staggered over the two years.
- 32 ECTS-credits worth of elective course units to give shape to your individual curriculum with options to specialize in Mechanics and Materials, Radiation Physics, Neuro-engineering, Artificial Intelligence and Digital Health, or Sensors and Devices.
- participation in the National Day on Biomedical Engineering, a Biomedical Industry Day and in company and field trips.
- possibility to choose a track that results in the recognition of 'Expert in Medical Radiation Physics'.

Master's Dissertation

The programme culminates with the Master's Dissertation. It consists of substantial, original and high-level academic research that is to be elaborated individually by the student and thus with a high degree of independence. All the while, however, the student is surrounded and supported by a research team. This independently conducted research, together with the written report and oral presentation is the students' ultimate demonstration of their ability to familiarize themselves with a new relevant biomedical engineering problem, study the problem on a high scientific level, and to report on the subject in various ways (Master's dissertation, poster, oral public presentation).

Programme mobility

The basic biomedical engineering course units are, in principle, offered in parallel at both universities, while the more specialist course units are either taught at Ghent University, Vrije Universiteit Brussel or together. We take into consideration optimal student and teaching staff mobility. For the elective course units and the Master's dissertation, students are free to choose between Ghent University, Vrije Universiteit Brussel or one of the (international) partner institutions with which either university has a bilateral agreement. Erasmus+ gives students the opportunity to study abroad as well, using the mobility window that is part of the second year. Students can choose to spend either one term of the 1st or 2nd master, or to spend the full 2nd master abroad.
Our interuniversity programme board overlooks each student's individual curriculum and might impose (a limited number) of course units, depending on their previously acquired credits and competences. As each student's trajectory is assessed on an individual basis, it is important to apply in a timely fashion. This ensures a careful study of individual track records and an optimal selection of course units.

LABOUR MARKET

Biomedical engineers find employment in industry (medical devices and technology, consultancy, software development, production and distribution industry, pharmaceutical industry, ...), in hospitals (university hospital labs, as well as in university and/or general hospital management), in universities and research institutes, notified bodies and regulatory affairs, and in government (government and advisory bodies). It goes without saying that biomedical engineers are wanted for all generic academic engineering jobs.

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TOELATINGSVOORWAARDEN VOOR HOUDERS VAN EEN VLAAMS DIPLOMA

1 **Rechtstreeks:**
- Bachelor in de ingenieurswetenschappen, afstudeerrichting: biomedische ingenieurstechnieken

2 **Na het met succes voltooien van een voorbereidingsprogramma:**

45 SP
- Een diploma van een opleiding 'Bachelor of Science in de ingenieurswetenschappen' (met uitzondering van 'architectuur')

MAX 45 SP
- Een diploma van een opleiding 'Master of Science in de ingenieurswetenschappen' leidend tot de titel van 'burgerlijk ingenieur' (met uitzondering van architectuur)
- Een diploma van een opleiding 'Master of Science in Engineering' leidend tot de titel van 'burgerlijk ingenieur' (met uitzondering van Architecture)
- Master in de ingenieurswetenschappen (KMS)

46 SP
- Een diploma van 'Master in Engineering Technology'
- Een diploma van een opleiding 'Master of Science in de industriële wetenschappen'

55 SP
- Bachelor in de fysica en de sterrenkunde
- Master in de fysica en de sterrenkunde

61 SP
- Master in de industriële wetenschappen: biochemie

85 SP
- Een diploma van een bacheloropleiding in het academisch onderwijs binnen één van de volgende studiegebieden (of een combinatie ervan):
  - Biomedische Wetenschappen
  - Farmaceutische Wetenschappen
  - Geneeskunde
  - Tandheelkunde
- Een diploma van een masteropleiding aansluitend op een bacheloropleiding binnen één van de volgende studiegebieden (of een combinatie ervan):
  - Biomedische Wetenschappen
  - Farmaceutische Wetenschappen
  - Geneeskunde
  - Tandheelkunde
- Een diploma van een masteropleiding aansluitend op een bacheloropleiding binnen één van de volgende studiegebieden (of een combinatie ervan):
  - Biomedische Wetenschappen
  - Farmaceutische Wetenschappen
  - Geneeskunde
  - Tandheelkunde

90 SP
- Een diploma van een opleiding 'Bachelor of Science in de bio-ingenieurswetenschappen'
- Een diploma van een opleiding 'Master of Bioscience Engineering' leidend tot de titel van 'bio-ingenieur'
- Een diploma van een opleiding 'Master of Science in de bio-ingenieurswetenschappen' leidend tot de titel van 'bio-ingenieur'

ADMISSION REQUIREMENTS FOR INTERNATIONAL DEGREE STUDENTS

BSc in Biomedical Engineering: admission after assessment of individual application where the equivalence with BSc in Biomedical engineering programs at UGent or VUB is checked
BSc in Engineering: it may still be possible to enter via preparatory program after assessment. We basically want students to get at level with students taking our BSc in Biomedical engineering programs at UGent or VUB, so you can verify the expected requirements.
Information on admission requirements and the administrative procedure for admission on the basis of a diploma obtained abroad, can be found on the following page: www.ugent.be/prospect/en/administration/enrolment-or-registration.

LANGUAGE REQUIREMENTS

Language requirements Dutch: no language requirements

Language requirements for this study programme differ from the required standard level for English taught study programmes as specified in the Ghent University Education and Examination Code:
English: TOEFL 580 (paper-based) - TOEFL 92 (internet-based) - TOEFL 237 (computer-based) - IELTS: 6.5

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FACULTY OF ENGINEERING AND ARCHITECTURE

2024-25

PRACTICAL INFORMATION

Study programme

studiekiezer.ugent.be/master-of-science-in-biomedical-engineering-en/programma

Information sessions

Graduation Fair

afstudeerbeurs.gent/en/students/further-studies

Enrolling institution

Ghent University, Vrije Universiteit Brussel

Information on enrolment at Ghent University.

Application Deadline (for International degree students)

For students who **need a visa**: before 1st of April
For students who **do not need a visa**: before 1st of June
Read more

Tuition fee

More information is to be found on: www.ugent.be/tuitionfee

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GHENT UNIVERSITY

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