ENROLMENT REQUIREMENTS MASTER OF BIOMEDICAL ENGINEERING

In order to be eligible to take a course, you usually have to meet certain enrolment requirements. These requirements can be both pre- and corequisites. The requirement may be blocking or advisory in nature. At the VUB, there are 4 types of enrolment requirements:

1. Binding prerequisite
2. Advisory prerequisite
3. Binding corequisite
4. Advisory corequisite

Below you will find the definition of the different types of enrolment requirements. Check out the specific enrolment requirements for your programme on the next page.

BINDING PREREQUISITE

Due to certain risks and safety issues, you can only enrol in course X if you have passed, been exempted from or deliberated for course Y. It is not possible to register for courses if you do not meet the binding prerequisite.

ADVISORY PREREQUISITE

The curriculum council strongly recommends that you only enrol in course X if you have taken course Y. Although this prerequisite is not binding and it is possible to register for course X without having taken course Y, it is your own responsibility not to follow the programme's advice. This means that you do not have the required competencies.

BINDING COREQUISITE

You can only enrol in course X if you are also simultaneously registered for (or have already passed/been exempted from) course Y. In order to achieve the learning results of course X in a safe/good way, a registration for course Y is necessary. It is not possible to register for courses if you do not meet the binding corequisite.

ADVISORY COREQUISITE

The curriculum council strongly recommends that you only enrol in course X if you are simultaneously registered for (or have already passed/been exempted from) course Y. Although this corequisite is not binding and it is possible to register for course X without simultaneously taking course Y, it is your own responsibility not to follow the programme's advice. This means that you do not have the required competencies.

HAVE A LOOK AT THE ENROLMENT REQUIREMENTS FOR YOUR PROGRAMME

VRIJE UNIVERSITEIT BRUSSEL

Enrolment requirements Master of Biomedical Engineering (120 ECTS-credits)

YEAR 1 (60 ECTS)

Course title	Sem	ECTS	Binding prerequisite	Advisory prerequisite	Binding corequisite	Advisory corequisite	Additional requirements
Compulsory common courses (46 ECTS)							
Medical imaging	1	6					
Neuro-engineering science	1	3					
Biomedical robotics and assistive technologies	1	5					
Biomaterials and tissue engineering	1	5					
Data analytics in health care and connected care	2	6					
Micro- and nanotechnologies for medical device design and fabrication	2	5					
Biomedical product development	1+2	6					
Compulsory computational course (6 ECTS)							
Computational methods in radiation physics	2	6					
Computational bio-fluid mechanics	2	6					
Computational tissue and structure mechanics	2	6					
Computational neurophysiology	2	6		Neuro-engineering science			
Elective courses (8 ECTS)							
Cluster Radiation physics							
Technology of radiotherapy	1	3					
Medical dosimetry	1	3		Radiological techniques			
Radiological techniques	1	3		Medical imaging			
Radiobiology and radiopathology	2	3					
Radiochemistry	2	3		Nuclear physics			
Radiation protection and regulations	2	3					
Nuclear physics	2	3					
Computational methods in radiation physics	2	6					
Measurement techniques in nuclear science	2	3					
Cluster Biomechanics and biomaterials							
Tissue engineering	1	6		Biomaterials and tissue engineering			
Plasma technology for biomedical applications	1	6					
Physics and chemistry of nanostructures	2	6					
Computational bio-fluid mechanics	2	6					
Computational tissue and structure mechanics	2	6					

Cluster Sensors and medical devices							
Microphotonics	1	6					
Biophotonics	1	4					
Biomedical devices: sensors, stimulators and drug delivery systems	2	4					
Control of drug-delivery systems	2	4					
Photonics	2	6					
Micro- and nanobiotechnology	2	3					
Sensors, acuators and electronic microsystems	2	6					
Micromachining Technologies and Rapid Prototyping: practical aspects	2	4					
Cluster Neuro-engineering							
Advanced image and signal processing	1	3		Medical imaging			
Contrast agents and biomarkers for imaging and therapy	1	3					
Computational neurophysiology	2	6					
Neural interfaces, neuromodulation and minimally invasive neurotechnology	2	3		Neuro-engineering sciences			
Translational neuroscience	2	3					
Auditory computation, modelling and technology	2	3					
Neurophysiological signal processing and network analysis	2	4		Neuro-engineering sciences			
Nuclear magnetic resonance imaging technology	2	3					
Cluster Artificial intelligence and digital health							
Deep learning	1	6					
Advanced image and signal processing	1	3					
Machine learning	1	6					
Introductions to bioinformatics	2	3					
Advances methods in bioinformatics	2	6					
Statistical foundations of machine learning	2	6					
Reinforcement learning	1+2	6					
General electives							
Modeling in medicine and biomedical engineering: case studies	1	3					
Micro- and nanobiotechnology	2	3					
Internship biomedical engineering	1 or 2	6					

YEAR 2 (60 ECTS)							
Course title	**Sem**	**ECTS**	**Binding prerequisite**	**Advisory prerequisite**	**Binding corequisite**	**Advisory corequisite**	**Additional requirements**
Compulsory common courses (38 ECTS)							
Clinical study design and biostatistics	1	3					
Hospital project	1	5					
Health information and decision support	2	3		Data analytics in health and connected care			
Leadership in health care	2	3					
Master thesis	1+2	24					Only for students who are able to graduate
Elective courses (22 ECTS)							
Cluster Radiation physics							
Technology of radiotherapy	1	3					
Medical dosimetry	1	3		Radiological techniques			
Radiologic techniques	1	3		Medical imaging			
Radiobiology and radiopathology	2	3					
Radiochemistry	2	3		Nuclear physics			
Radiation protection and regulations	2	3					
Nuclear physics	2	3					
Computational methods in radiation physics	2	6					
Measurement techniques in nuclear science	2	3					
Cluster Biomechanics and biomaterials							
Tissue engineering	1	6		Biomaterials and tissue engineering			
Plasma technology for biomedical applications	1	6					
Physics and chemistry of nanostructures	2	6					
Computational bio-fluid mechanics	2	6					
Computational tissue and structure mechanics	2	6					
Cluster Sensors and medical devices							
Microphotonics	1	6					
Biophotonics	1	4					
Biomedical devices: sensors, stimulators and drug delivery systems	2	4					
Control of drug-delivery systems	2	4					
Photonics	2	6					
Micro- and nanobiotechnology	2	3					
Sensors, acuators and electronic microsystems	2	6					
Advanced Methods in Bioinformatics	2	6					
Micromachining Technologies and Rapid Prototyping: practical aspects	2	4					

Cluster Neuro-engineering							
Advanced image and signal processing	1	3		Medical imaging			
Contrast agents and biomarkers for imaging and therapy	1	3					
Computational neurophysiology	2	6					
Neural interfaces, neuromodulation and minimally invasive neurotechnology	2	3		Neuro-engineering sciences			
Translational neuroscience	2	3					
Auditory computation, modelling and technology	2	3					
Neurophysiological signal processing and network analysis	2	4		Neuro-engineering sciences			
Nuclear magnetic resonance imaging technology	2	3					
Cluster Artificial intelligence and digital health							
Deep learning	1	6					
Advanced image and signal processing	1	3					
Machine learning	1	6					
Introductions to bioinformatics	2	3					
Advances methods in bioinformatics	2	6					
Statistical foundations of machine learning	2	6					
Reinforcement learning	1+2	6					
General electives							
Modeling in medicine and biomedical engineering: case studies	1	3					
Micro- and nanobiotechnology	2	3					
Project: multifunctional materials	2	5					
Internship biomedical engineering	1 or 2	6					