

EMBIEN11.1 General Courses

The interuniversity program Master of Science in Biomedical Engineering is jointly organized with the Vrije Universiteit Brussel (VUB).

The references next to the courses indicate where the courses are organized:

- Courses marked with 'j' are jointly organized by UGent and VUB;
- Courses marked with 'p' are organized in parallel, both at UGent and at VUB;
- Courses marked with 'u' are organized by UGent;
- Courses marked with 'v' are organized by VUB.

No.	Course name	Lecturer (dept.)	CRDT	Ref	MT1	MT2	Semester	Contact	Study
1	Medical Imaging	Stefaan Vandenberghes TW06	6	j	1	1	50	180	
2	Biomaterials and Tissue Engineering	Ruslan Dmitriev GE38	5	j	1	1	75	150	
3	Neuro-engineering Science	Pieter van Mierlo TW06	3	u	1	1	25	90	
4	Micro- and Nanotechnologies for Medical Device Design and Fabrication	Maaïke Op de Beeck TW06	5	j	1	2	37.5	140	
5	Artificial Organs	Thierry Bové GE38	5	u	1	1	67.5	150	
6	Biomedical Product Development	Ewout Vansteenkiste WE05	6	p	1	J	30	180	
7	Medical Equipment, Safety and Regulations	Sunny Eloot GE35	5	u	1	2	60	150	
8	Data Analytics in Healthcare and Connected Care	Sofie Van Hoecke TW06	6	p	1	2	60	180	
9	Biomedical Robotics and Assistive Technologies	Joost Geeroms VUB	5	v	1	1	54	150	
10	Clinical Study Design and Biostatistics	Barbara Vanderstraeten GE38	3	u	2	1	25	90	
11	Hospital Project	Pascal Verdonck TW06	5	p	2	J	45	150	
12	Leadership in Health Care	Pascal Verdonck TW06	3	u	2	2	22.5	90	
13	Health Information and Decision Support Systems	Jef Vandemeulebroucke VUB	3	v	2	2	31.5	90	

EMBIEN11.2 Elective Courses

Subscribe to 6 credit units from the following list. Subject to approval by the faculty.

No.	Course name	Lecturer (dept.)	CRDT	Ref	MT1	MT2	Semester	Contact	Study
1	Computational Bio-Fluid Mechanics	Charlotte Debbaut TW06	6	u	1	2	45	180	
2	Computational Tissue and Structure Mechanics	Nele Famaey TW06	6	u	1	2	45	180	
3	Computational Neurophysiology	Sarah Verhulst TW05	6	j	1	2	60	180	

EMBIEN11.3 Elective Courses

Subscribe to 30 credit units from no less than 1 and no more than 6 modules from the following list. Subject to approval by the faculty.

- 8 credit units in year 1
- 22 credit units in year 2

EMBIEN11.3.1 Elective Courses Biomedical Engineering

No.	Course name	Lecturer (dept.)	CRDT	Ref	MT1	MT2	Semester	Contact	Study
1	Internship 1 [en, nl]	Patrick Segers TW06	3	u			A:11, B:	7.5	90
2	Internship 2 [en, nl]	Patrick Segers TW06	3	u			A:11, B:	7.5	90
3	Internship 3 [en, nl]	Patrick Segers TW06	6	u			A:11, B:	7.5	180
4	International Internship 1	Patrick Segers TW06	3	u			A:11, B:	7.5	90
5	International Internship 2	Patrick Segers TW06	3	u			A:11, B:	7.5	90

6	International Internship 3	<i>Patrick Segers TW06</i>	6	u	A:11, B: 7.5	180
7	Modeling in Medicine and Biomedical Engineering: Case Studies	<i>Patrick Segers TW06</i>	3	u	1 30	90
8	Bioelectromagnetism	<i>Wout Joseph TW05</i>	4	u	2 45	120
9	Manufacturing Planning and Control	<i>Birger Raa TW18</i>	6	u	1 60	180
10	Ethics, Engineering and Society [nl]	<i>Guido Pennings LW01</i>	3	u	2 15	90
11	Artificial Intelligence	<i>Aleksandra Pizurica TW07</i>	6	u	1 60	180
12	Wave Physics in Living Matter	<i>Wout Joseph TW05</i>	6	u	2 45	180
13	Scientific and Clinical Applications of Magnetic Nanoparticles	<i>Annelies Coene TW08</i>	3	u	2 30	90

EMBIEN11.3.2 Elective Courses Neuro-engineering

No.	Course name	Lecturer (dept.)	CRDT	Ref	MT1	MT2	Semester	Contact	Study
1	Advanced Image and Signal Processing	<i>Stefaan Vandenberghe TW06</i>	3	u			1	25	90
2	Nuclear Magnetic Resonance Imaging Technology	<i>Roel Van Holen TW06</i>	3	u			2	30.5	90
3	Neuro-physiological Signal Processing and Network Analysis	<i>Guy Nagels VUB</i>	4	v			2	50	120
4	Translational Neuroscience	<i>Christian Vanhove TW06</i>	3	u			2	30	90
5	Neural Interfaces, Neuromodulation and Minimally Invasive Neurotechnology	<i>Vincent Keereman TW06</i>	3	u			2	30	90
6	Auditory Computation, Modelling and Devices	<i>Sarah Verhulst TW05</i>	3	u			2	25	90
7	Contrast Agents and Biomarkers for Imaging and Therapy	<i>Christian Vanhove TW06</i>	3	u			1	30	90
8	Computational Neurophysiology	<i>Sarah Verhulst TW05</i>	6	u			2	60	180

EMBIEN11.3.3 Elective Courses Biomechanics and Biomaterials

No.	Course name	Lecturer (dept.)	CRDT	Ref	MT1	MT2	Semester	Contact	Study
1	Computational Bio-Fluid Mechanics	<i>Charlotte Debbaut TW06</i>	6	u			2	45	180
2	Computational Tissue and Structure Mechanics	<i>Nele Famaey TW06</i>	6	u			2	45	180
3	Physics and Chemistry of Nanostructures	<i>Zeger Hens WE06</i>	6	u			2	52.5	180
4	Tissue Engineering	<i>Ruslan Dmitriev GE38</i>	6	u			1	45	180
5	Plasma Technology for Biomedical Applications	<i>Nathalie De Geyter TW17</i>	6	u			1	40	180

EMBIEN11.3.4 Elective Courses Sensors and Medical Devices

No.	Course name	Lecturer (dept.)	CRDT	Ref	MT1	MT2	Semester	Contact	Study
1	Microphotonics	<i>Dries Van Thourhout TW05</i>	6	u			1	60	180
2	Biophotonics	<i>Nicolas Le Thomas TW05</i>	4	u			1	30	120
3	Sensors and Actuators	<i>Herbert De Smet TW06</i>	6	u			2	45	180
4	Photonics [nl]	<i>Roel Baets TW05</i>	6	u			2	60	180
5	Technological Processes for Photonics and Electronics		4	v			J	50	120
6	Biomedical Devices: Sensors, Stimulators and Drug Delivery	<i>Johan Stiens VUB</i>	4	v			2	46	120
7	Control of Drug-delivery Systems	<i>Clara-Mihaela Ionescu TW08</i>	4	u			2	46	120

EMBIEN11.3.5 Elective Courses Radiation Physics

No.	Course name	Lecturer (dept.)	CRDT	Ref	MT1	MT2	Semester	Contact	Study
1	Measurement Techniques in Nuclear Science	<i>Freya Blekman VUB</i>	3	v			2	22.5	90
2	Nuclear Physics	<i>Michel Sonck VUB</i>	3	v			2	30	90
3	Nuclear Reactors and Cyclotrons	<i>Michel Sonck VUB</i>	3	v			1	22.5	90
4	Technology of Radiotherapy	<i>Werner De Gersem GE38</i>	3	u			1	30	90
5	Medical Dosimetry	<i>Nico Bols VUB</i>	3	v			1	37.5	90

6	Radiologic Techniques	Klaus Bacher GE38	3	u	1	22.5	90
7	Radioprotection and Regulations [nl]	Michel Sonck VUB	3	v	2	25	90
8	Radiochemistry [nl]	Filip De Vos FW02	3	u	2	25	90
9	Radiobiology and Radiopathology	Marc Van Eijkeren GE38	3	u	2	15	90

EMBIEN11.3.6 Elective Courses Ghent University or VUB

Subscribe to no more than 30 credit units from Elective Courses Ghent University or VUB. Subject to approval by the faculty.
See www.ugent.be/ea/bme/en

EMBIEN11.4 Master's Dissertation

No.	Course name	Lecturer (dept.)	CRDT	Ref	MT1	MT2	Semester	Contact	Study
1	Master's Dissertation		24		2	J		60	720

Teaching languages

When a course is not taught (solely) in the programme's language of instruction, the effectively used languages are indicated in square brackets following the course name, using the following ISO codes:

bg: Bulgarian	de: German	es: Spanish	ja: Japanese	pl: Polish	sh: Croatian/Serbian	zh: Chinese
cs: Czech	el: Greek	fr: French	nl: Dutch	pt: Portuguese	sl: Slovene	
da: Danish	en: English	it: Italian	no: Norwegian	ru: Russian	sv: Swedish	

Semester

Semesters are indicated by their number (1 or 2); semester 3 represents the summer period and J indicates a course spanning semesters 1 and 2. When a capital letter precedes a semester number, the course has multiple offerings. The letter indicates the offering concerned.

When a semester is shown in brackets, the course is not offered this year in the specific offering.

The offering frequency and first year of offering are indicated by the following codes:

a: bi-annually	c: annually, from 2022-2023	f: annually, from 2023-2024	i: annually, from 2024-2025
b: tri-annually	d: bi-annually, from 2022-2023	g: bi-annually, from 2023-2024	j: bi-annually, from 2024-2025
	e: tri-annually, from 2022-2023	h: tri-annually, from 2023-2024	k: tri-annually, from 2024-2025