Study Programme

Academic year 2024-2025

Faculty of Pharmaceutical Sciences,Faculty of Bioscience Engineering

Master of Science in Pharmaceutical Engineering

Language of instruction: English

Programme version 3

1 General Courses

Due to the interdisciplinary character of the study programme, the students are required to take up a partially different set of compulsory subjects, depending on the discipline of their preliminary education. Course units for which one or more references are mentioned, are only taken up by the students holding the degrees mentioned hereafter:

- 'B': the degrees of BSc in de bio-ingenieurswetenschappen; BSc in de bio-industriële wetenschappen; BSc in de biowetenschappen; BSc in Environmental Technology; BSc in Food Technology; BSc in Molecular Biotechnology
- 'P': the degree of BSc in de farmaceutische wetenschappen
- 'C': the degree of BSc in de chemie

Nr	Course		CRDT	Ref	MT1	Session	Study
1	J000278	Pharmacokinetics	4	B,C	1	A:1	120
		An Vermeulen -- Department of Bio-analysis					
		Indicative price: unknown					
2	J000517	Drug Product Formulation	6	B,C	1	A:1	180
		Chris Vervaet -- Department of Pharmaceutics					
		Indicative price: € 15					
3	I002510	Reaction Kinetics and Reactor Design	5	P,C	1	B:1	150
		Paul Van der Meeren -- Department of Green Chemistry and Technology					
		Indicative price: € 10					
4	I002612	Industrial Biotechnology	5		1	A:1	150
		Wim Soetaert -- Department of Biotechnology					
		Indicative price: € 15					
5	I002675	Chemical Structure Determination	4	B,P	1	A:1	120
		Christian Stevens -- Department of Green Chemistry and Technology					
		Indicative price: € 20					
6	J000519	Pharmaceutical Quality by Design and Process Analytical Technology	5		1	A:1	150
		Thomas De Beer -- Department of Pharmaceutical Analysis					
		Indicative price: € 0					
7	C003080	Programming	5	P (UKV)	1	C:1	150
		Peter Dawyndt -- Department of Mathematics, Computer Science and Statistics					
		Indicative price: € 0					
8	J000548	Physical Chemistry of Liquid Drugs	6	B	1	A:2	180
		Stefaan De Smedt -- Department of Pharmaceutics					
		Indicative price: unknown					
9	J000500	Pharmacology: Drugs and Their Targets	4	B,C	1	A:2	120
		Serge Van Calenbergh -- Department of Pharmaceutics					
		Indicative price: € 25					
10	I002442	Process Engineering	5	P,C	1	B:2	150
		Jo Dewulf -- Department of Green Chemistry and Technology					
		Indicative price: € 15					
11	I002892	Introduction to Data Science	4	P,C	1	A:2	120
		Jan Verwaeren -- Department of Data Analysis and Mathematical Modelling					
		Indicative price: € 0					
12	I002891	Introduction to Mathematical Modelling	6	P	1	A:2	180
		Paul Van Liedekerke -- Department of Data Analysis and Mathematical Modelling					
		Indicative price: unknown					
13	J000518	Pharmaceutical Material Science	5		1	A:2	150
		Valérie Vanhoorne -- Department of Pharmaceutics					

Nr	Course		CRDT	Ref	MT1	Session	Study
14	J000520	Pharmaceutical Production Processes	6	1		A:J	180
		Chris Vervaet -- Department of Pharmaceutics					
		Indicative price: € 15					
15	I002700	Clean Technology	5	2		A:1	150
		Sophie Huysveld -- Department of Green Chemistry and Technology					
		Indicative price: unknown					
16	I002618	Process Engineering 2	4	2		B:1	120
		Paul Van der Meeren -- Department of Green Chemistry and Technology					
		Indicative price: € 10					
17	J000522	Pharmaceutical Process Validation and Quality	5	2		A:1	150
		Thomas De Beer -- Department of Pharmaceutical Analysis					
		Indicative price: € 0					
18	I002672	Process Control	5	2		A:2	150
		Paul Van Liedekerke -- Department of Data Analysis and Mathematical Modelling					
		Indicative price: € 0					
19	J000521	Pharmaceutical Process and Equipment Design	8	2		A:J	240
		Ashish Kumar -- Department of Pharmaceutical Analysis					
		Indicative price: € 0					

2 Elective Courses

Subscribe to no less than 13 and no more than 18 credit units from no less than 1 and no more than 2 modules from the following list.
Subject to approval by the faculty.
Students pertaining to the general course target group 'B' are required to take up 18 credits (13 to 17 of which are to be taken in the first master's year, 3 to 5 in the second). Students pertaining to the target group 'P' are required to take up 13 credits (8 to 12 of which are to be taken in the first master's year, 3 to 5 in the second). Students pertaining to the target group 'C' are required to take up 14 credits (9 to 13 of which are to be taken in the first master's year, 3 to 5 in the second).

2.1 Programme-Specific Electives

Nr	Course		CRDT	Ref	MT1	Session	Study
1	J000524	Advanced Modelling and Simulation of Pharmaceutical Systems	5		2	A:1	150
		Ashish Kumar -- Department of Pharmaceutical Analysis					
		Indicative price: € 0					
2	E076431	Introduction to Entrepreneurship	3			A:1	90
		Petra Andries -- Department of Marketing, Innovation and Organisation					
		Indicative price: € 33					
3	F000707	Project Management	6			A:1	180
		Mario Vanhoucke -- Department of Business Informatics and Operations Management					
		Indicative price: € 75					
4	E076221	Manufacturing Planning and Control	6			A:1	180
		Birger Raa -- Department of Industrial Systems Engineering and Product Design					
		Indicative price: € 0					
5	J000526	(International) Internship	5			A:J	150
		Thomas De Beer -- Department of Pharmaceutical Analysis					
		Indicative price: € 0					
6	J000447	Advanced Biotherapies	3			A:J	90
		Koen Raemdonck -- Department of Pharmaceutics					
		Indicative price: € 30					
7	I002619	Management for Engineers	4			A:1	120
		Jeroen Buysse -- Department of Agricultural Economics					
		Indicative price: € 0					
8	C003701	Selected Topics in Mathematical Optimization	3		2	A:1	75
		Paul Van Liedekerke -- Department of Data Analysis and Mathematical Modelling					
		Indicative price: € 0					
9	I002932	Machine Learning for Life Sciences	5		2	A:1	150
		Willem Waegeman -- Department of Data Analysis and Mathematical Modelling					
		Indicative price: € 0					
10	J000445	Regulatory Affairs Health Products	3			A:J	90
		Evelien Wynendaele -- Department of Pharmaceutical Analysis					
		Indicative price: € 0					
11	J000454	Cutting Edge Technologies for Drug Delivery - Nanomedicines	3			A:2	90
		Stefaan De Smedt -- Department of Pharmaceutics					

Nr		Course	CRDT	Ref	MT1	Session	Study
12	J000455	Pharmaceutical Multivariate Design and Analysis of Experiments	3			A:2	90

Thomas De Beer -- Department of Pharmaceutical Analysis
Indicative price: € 0

| 13 | I003021 | Advanced Biosystems Modelling | 5 | 2 | | A:2 | 150 |

Paul Van Liedekerke -- Department of Data Analysis and Mathematical Modelling
Indicative price: € 0

2.2 Ghent University Courses

Subscribe to no more than 3 credit units from courses available at Ghent University, including the Ghent University Elective Courses.
Subject to approval by the faculty.

3 Master's Dissertation   30 credits

Nr	Course		CRDT	Ref	MT1	Session	Study
1	J000523	Master's Dissertation	30	2		A:J	800

Thomas De Beer -- Department of Pharmaceutical Analysis
Indicative price: unknown

Programme related study costs

None

Teaching

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 cours name, using the following ISO codes:

bg: Bulgarian	de: German	es: Spanish	ja: Japanese	pl: Polish	sh: Kroatian/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 in 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 2025-2026	f: annually, from 2026-2027	i: annually, from 2027-2028
b: tri-annually	d: bi-annually, from 2025-2026	g: bi-annually, from 2026-2027	j: bi-annually, from 2027-2028
	e: tri-annually, from 2025-2026	h: tri-annually, from 2026-2027	k: tri-annually, from 2027-2028

Learning materials

The prices stated are indicative and subject to fluctuations.
The list of learning materials per course unit can be found in the course sheets.