GHENT UNIVERSITY

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 *An Vermeulen -- Department of Bio-analysis*	4	B,C	1	A:1	120
2	J000517	Drug Product Formulation *Chris Vervaet -- Department of Pharmaceutics*	6	B,C	1	A:1	180
3	I002510	Reaction Kinetics and Reactor Design *Paul Van der Meeren -- Department of Green Chemistry and Technology*	5	P,C	1	B:1	150
4	I002612	Industrial Biotechnology *Wim Soetaert -- Department of Biotechnology*	5		1	A:1	150
5	I002675	Chemical Structure Determination *Christian Stevens -- Department of Green Chemistry and Technology*	4	B,P	1	A:1	120
6	J000519	Pharmaceutical Quality by Design and Process Analytical Technology *Thomas De Beer -- Department of Pharmaceutical Analysis*	5		1	A:1	150
7	C003080	Programming *Peter Dawyndt -- Department of Mathematics, Computer Science and Statistics*	5	P (UKV)	1	C:1	150
8	J000548	Physical Chemistry of Liquid Drugs *Stefaan De Smedt -- Department of Pharmaceutics*	6	B	1	A:2	180
9	J000500	Pharmacology: Drugs and Their Targets *Serge Van Calenbergh -- Department of Pharmaceutics*	4	B,C	1	A:2	120
10	I002442	Process Engineering *Jo Dewulf -- Department of Green Chemistry and Technology*	5	P,C	1	B:2	150
11	I002892	Introduction to Data Science *Jan Verwaeren -- Department of Data Analysis and Mathematical Modelling*	4	P,C	1	A:2	120
12	I002891	Introduction to Mathematical Modelling *Paul Van Liedekerke -- Department of Data Analysis and Mathematical Modelling*	6	P	1	A:2	180
13	J000518	Pharmaceutical Material Science *Valérie Vanhoorne -- Department of Pharmaceutics*	5		1	A:2	150
14	J000520	Pharmaceutical Production Processes *Chris Vervaet -- Department of Pharmaceutics*	6		1	A:J	180
15	I002700	Clean Technology *Sophie Huysveld -- Department of Green Chemistry and Technology*	5		2	A:1	150
16	I002618	Process Engineering 2 *Paul Van der Meeren -- Department of Green Chemistry and Technology*	4		2	B:1	120
17	J000522	Pharmaceutical Process Validation and Quality *Thomas De Beer -- Department of Pharmaceutical Analysis*	5		2	A:1	150
18	I002672	Process Control *Paul Van Liedekerke -- Department of Data Analysis and Mathematical Modelling*	5		2	A:2	150

19	J000521	Pharmaceutical Process and Equipment Design *Ashish Kumar -- Department of Pharmaceutical Analysis*	8		2	A:J	240

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 *Ashish Kumar -- Department of Pharmaceutical Analysis*	5		2	A:1	150
2	E076431	Introduction to Entrepreneurship *Petra Andries -- Department of Marketing, Innovation and Organisation*	3			A:1	90
3	F000707	Project Management *Mario Vanhoucke -- Department of Business Informatics and Operations Management*	6			A:1	180
4	E076221	Manufacturing Planning and Control *Birger Raa -- Department of Industrial Systems Engineering and Product Design*	6			A:1	180
5	J000526	(International) Internship *Thomas De Beer -- Department of Pharmaceutical Analysis*	5			A:J	150
6	J000447	Advanced Biotherapies *Koen Raemdonck -- Department of Pharmaceutics*	3			A:J	90
7	I002619	Management for Engineers *Jeroen Buysse -- Department of Agricultural Economics*	4			A:1	120
8	C003701	Selected Topics in Mathematical Optimization *Paul Van Liedekerke -- Department of Data Analysis and Mathematical Modelling*	3		2	A:1	75
9	I002932	Machine Learning for Life Sciences *Willem Waegeman -- Department of Data Analysis and Mathematical Modelling*	5		2	A:1	150
10	J000445	Regulatory Affairs Health Products *Evelien Wynendaele -- Department of Pharmaceutical Analysis*	3			A:J	90
11	J000454	Cutting Edge Technologies for Drug Delivery - Nanomedicines *Stefaan De Smedt -- Department of Pharmaceutics*	3			A:2	90
12	J000455	Pharmaceutical Multivariate Design and Analysis of Experiments *Thomas De Beer -- Department of Pharmaceutical Analysis*	3			A:2	90
13	I003021	Advanced Biosystems Modelling *Paul Van Liedekerke -- Department of Data Analysis and Mathematical Modelling*	5		2	A:2	150

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 *Thomas De Beer -- Department of Pharmaceutical Analysis*	30		2	A:J	800

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