MSC (INDUSTRIAL PHARMACEUTICAL SCIENCES, OPERATIONS AND MANAGEMENT)

Overview

Status: Active
National Framework Of Qualifications (NFQ) Level: 9
NFQ Award Class: Major Award
Duration Full Time: 12 Month(s)
Duration Part Time: 24 Month(s)
Total Credits: 90
Delivery Method: In-Person

Connected Curriculum:
- Employability
- Inter-and Transdisciplinary
- Sustainability

Sustainable Development Goals (SDGs):
- Decent Work and Economic Growth
- Industry, Innovation, and Infrastructure

Graduate Attributes:
- Creator, evaluator and communicator of knowledge
- Digitally Fluent
- Independent and creative thinker

Work-Integrated Learning (Including Placement):
Yes

The MSc in Industrial Pharmaceutical Sciences, Operations and Management may be taken full-time over 12 months or part-time over 24 months from the date of first registration for the programme.

Full-time Students:

Full-time students will complete **90** credits over a 12-month period. Full-time students take taught modules to the value of **60** credits across semester 1 and semester 2, with **40** credits being delivered in semester 1 and **20** credits delivered in semester 2. In semester 1, teaching will be delivered predominantly on campus through lectures, workshops, and practical sessions. In semester 2, teaching will be delivered through a blended approach of remote lectures, online (live) workshops, and some in-person workshops.

Students will have an option in semester 2 to select 10 elective credits in operations, or digital transformation and novel products. In semesters 2 and 3, students will undertake an 8-month industrial placement. While on placement, students will complete a 30-credit industry-based project and placement. A work placement rubric will guide the completion and assessment of the project and work-based learning participation.

Part-time Students:

Part-time students will complete **90** credits over a 24-month period. Part-time students will complete **30** credits in each academic year, with **15** credits in each semester. Part-time students will be industry based and not complete an industrial placement. Part-time students will attend lectures remotely, in person on campus as well as in the workplace. Teaching will be delivered predominantly on campus through lectures, workshops, and practical sessions across all semesters. A rubric will guide the completion and assessment of the project participation.

Notes:

- Taught modules will be offered on a cyclical basis over alternative years for part-time students.
- Depending on numbers, not all electives may run in a given year.

Exit Award: Postgraduate Diploma in Industrial Pharmaceutical Sciences, Operations and Management (NFQ Level 9, Major Award)

Upon successful completion of Part I modules to the value of 60 credits, students may opt to exit the programme and be conferred with a Postgraduate Diploma in Industrial Pharmaceutical Sciences, Operations and Management (https://ucc-ie-public.courseleaf.com/programmes/pdips/). Students taking an exit award cannot subsequently register for the remainder of the Masters.

Programme Requirements

For information about modules, module choice, options and credit weightings, please go to Programme Requirements (p. 1).

Programme Requirements
Full-time

Code	Title	Credits
Part I		
Students take **60** credits as follows - all listed core modules (**50** credits) and **10** credits of elective modules:		
Core Modules		
PF6026	Pharmaceutical Technology and Unit Operations with Regulatory Insights	5
PF6027	Pharmaceutical GxP and Regulatory Science	5
PF6032	Bioprocessing Unit Operations	5
PF6033	Pharmaceutical Analysis and Analytics	5
PF6045	Pharmaceutical Operations & Management	10
BU6514	Business Case for Analytics	5
MG6024	Developing Management and Leadership Skills	10
MG6025	Project Management	5
Elective Modules [1]		
Students take modules to the value of **10** credits from the following:		10
PF6028	Process Control and Validation for Pharmaceutical Processes (5)	
PF6029	Biotechnology-derived and Advanced Therapy Medicinal Products (ATMPs) (5)	
PF6044	Digital Transformation in the (Bio)pharma Industry (5)	
PF6035	Lean Six Sigma for BioPharma (10)	
Part II		
Students take **30** credits as follows:		

Core Modules		
PF6036	Industrial-based Dissertation and Placement	30
Total Credits		**90**

Part-time

Code	Title	Credits
Part I		
Students take **60** credits as follows - all listed core modules (**30** credits) in Year 1; and all listed core modules (**20** credits) and **10** credits of elective modules in Year 2:		
Year 1		
Students take **30** credits as follows:		
Core Modules [2]		
MG6025	Project Management	5
PF6026	Pharmaceutical Technology and Unit Operations with Regulatory Insights	5
PF6027	Pharmaceutical GxP and Regulatory Science	5
PF6028	Process Control and Validation for Pharmaceutical Processes	5
PF6032	Bioprocessing Unit Operations	5
PF6033	Pharmaceutical Analysis and Analytics	5
Year 2		
Students take **30** credits as follows - all listed core modules (**20** credits) and **10** credits of elective modules:		
Core Modules [2]		
BU6514	Business Case for Analytics	5
MG6024	Developing Management and Leadership Skills	10
PF6034	Pharmaceutical Operations	5
Elective Modules [1]		
Students take modules to the value of **10** credits from the following:		10
PF6029	Biotechnology-derived and Advanced Therapy Medicinal Products (ATMPs) (5)	
PF6044	Digital Transformation in the (Bio)pharma Industry (5)	
PF6035	Lean Six Sigma for BioPharma (10)	
Part II		
Students take **30** credits as follows:		
Core Modules		
PF6039	Industry-based Dissertation	30
Total Credits		**90**

[1] Depending on numbers, not all electives may run in a given year.
[2] Taught modules will be offered on a cyclical basis over alternative years for part-time students.

Examinations

Full details and regulations governing Examinations for each programme will be contained in the *Marks and Standards Book* and for each module in the *Book of Modules*.

Programme Learning Outcomes

Programme Learning Outcomes for MSc (Industrial Pharmaceutical Sciences, Operations and Management) (NFQ Level 9, Major Award)

On successful completion of this programme, students should be able to:

- Design, differentiate, and execute biopharmaceutical unit processes and analytical methods in a good manufacturing practice (GMP) environment.
- Critique the theoretical aspects of quality systems, regulatory processes, and validation approaches and differentiate how they are applied to biopharmaceutical industry in a real-world environment.
- Appraise, assess and problem solve common manufacturing issues encountered in the biopharmaceutical industry using scientific problem solving and data analysis.
- Apply Lean Six Sigma, supply chain, and project management principles within an operations environment in the pharmaceutical sciences sector and beyond.
- Communicate effectively within the workplace through written and verbal formats including scientific and technical writing.
- Collaborate, lead, and manage effectively within the workplace through the application of leadership, organisational dynamics, and management theory.
- Evaluate, identify, and describe trends in digital transformation, industry 4.0 as applied to the biopharma industry (Pharma 4.0).
- Compare and contrast data and data analytics and appraise how data analytics can beused to manage and improve manufacturing processes in the biopharma industry.