

# Modular Masters

## A Guide for Employers

At present there is a shortage of coherent and specific training provision in Formulation Science and Technology. As a result the industry has found it difficult to develop employees with the right skill set for scientific, technical and production functions at all levels from vocational to professional. In response, the Science Industry Partnership has developed a Modular Masters programme in Formulation Science and Technology to provide specialist CPD that can build into a full masters upon completion of 180 credits of learning. This will provide employees with the specialist knowledge that employers seek.

## The Programme

The Modular Masters has been designed to be flexible in order to meet the needs of employers in the Formulation industry.

Students may choose to study one or more modules as CPD or alternatively acquire credits which builds up into a full Masters qualification.

The first stage of the programme has been launched and the first modules have been announced, drawing from top quality modules in existence from a range of Universities.

The second stage of the programme will be announced in early 2015 when the content and programme of the full Masters including final details of providers will be available. **Any credits earned in the first stage may be carried forwards to the full Masters.**

## Features

Over time modules can be completed and 'banked' to build towards a Postgraduate Certificate (60 credits), Diploma (120 credits) or a full Masters qualification on completion of a project (180 credits).

It is anticipated that all providers will provide e-learning and distance learning modes to provide employers with optimum flexibility.

There are six core modules applicable across all industries which are compulsory for those wishing to complete the full Masters. There are also additional industry specific modules available. You may choose to take any number of these modules up to a total of 60 credits for the full Masters.

## Length

Typically a student will take three to five years of part-time study to complete the full Masters.

## Programme Benefits

- The Modular Masters is an ideal opportunity for employees to develop their skills in all aspects of Formulation Science
- The programme is unique in offering employees flexibility to either study individual modules for CPD or accumulate credits leading to the full Masters qualification
- Using innovative delivery models, the programme offers a new approach to the provision of high-level skills in formulation
- The Modular Masters programme focuses on developing those skills in formulation which employers have identified as being critical to driving innovation, productivity and growth
- The modular framework ensures wide coverage of scientific and technological themes as well as the broadest possible appeal across all formulating industries
- The full Masters programme includes a substantial research project of relevance to the employer
- Employer oversight via a steering group ensures ongoing industry relevance, guidance and development of the programme

## Student Eligibility

Students wishing to pursue a formal qualification will need to register with individual Higher Education Institutions (HEIs) and meet their eligibility criteria. In general a good degree in a relevant scientific discipline will allow entry onto a Masters course and in many cases, HEIs will recognise a combination of prior learning and relevant experience if this formal qualification is not available. Cogent will assist students and employers with the process of registration and clarifying eligibility questions.



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The University of Manchester

## Stage 1

In early 2015, three modules (2 core and one optional) have been chosen to pilot the Modular Masters programme and are available immediately. Students wishing to pursue the full masters are not required to sign up for all modules immediately as a further opportunity to take equivalent modules will be available at the next stage.

The three modules are:

### Design Principles for Formulation and R&D Methodology, March 2015

£1,100 per person

De Montfort University, 15 credits (Core)

E-Learning / Distance Learning

This module focuses on research and experiment design methods applying Quality by Design (QbD) principles. The importance of design space concept will be discussed and the approaches taught will be applicable to all formulating industries.

### Characterisation for Formulation March 2015

£770 per person

University of Birmingham, 10 credits (Core)

A 3-day in-person taught course with an assignment.

This module examines a variety of techniques that are important for characterising the structure and quality of formulated products and the processes used to make them. X-ray microtomography, micromanipulation, positron emission particle tracking and particle image velocimetry are just some of the methods studied.

### Preformulation Studies: Biopharmaceutical aspects of dosage form, April 2015

£1,700 per person

University of Manchester, 15 Credits (Optional)

Distance learning course.

Physicochemical aspects of drug substances and excipients will be the focus of this module. It explains the need for preformulation and a number of solubility parameters will be discussed. The concept of stability will be explained, including degradation mechanisms, stability assessment and inhibition. In addition, particle properties and powder flow and compression properties will be explained.

## Full Masters Programme

Details for the full Modular Masters programme will be announced in early 2015 following a tendering process for providers which will be administered by Cogent and the SIP.

Until that time, a draft programme is available (below) Further descriptions of each module is available on request.

## Core Modules

These modules are applicable across all sectors and are compulsory for all of those who wish to complete the full Masters.

Design Principles for Formulation and R&D Methodology	Characterisation for Formulation
Colloid Chemistry and Rheology	Practical Liquid and Semi-Solid Formulation Fundamentals
Practical Solid Formulation Fundamentals	Delivery Fundamentals
Processing Principles for Formulation	

## Optional Modules

The student may choose to do any number of these modules up to a total of 60 credits for the full masters.

Automation in Formulation Design	Drying Formulations
Granulation for Formulation	Compaction and Tableting
Processing Liquids and Semi-Solids	Advanced Dispersions and Suspensions
Crystalline solids in Formulations	Quality Systems for Formulation
Sustainable & Resource Efficient Formulation	Non-Aqueous Formulations
Advanced Pharmaceutical Formulation and Drug Delivery	Advanced Coating Formulation
Functional Ingredients for Formulation	Company Specific Topic
Crystallisation and Formulation for Manufacture	Encapsulation and Delivery
Powders in Formulations	Modelling and Simulation Methods for Formulation
Process Control and in Process Measurement	Advanced Cosmetic Formulation
Advanced Ink Formulation	Preformulation Studies

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