MODULE DESCRIPTOR

Module Title

Medicine Design And Manufacture

Reference	PL2003	Version	2
Created	March 2024	SCQF Level	SCQF 8
Approved	June 2022	SCQF Points	30
Amended	April 2024	ECTS Points	15

Aims of Module

To develop an understanding of the design of safe and effective medicines within a quality framework in the context of a variety of patient groups.

Learning Outcomes for Module

On completion of this module, students are expected to be able to:

1	Describe the process of medicine development from the raw active pharmaceutical ingredient (drug) to the final marketed product.
2	Discuss the principles involved in the design of quality medicinal products and devices, their packaging and stability assessment.
3	Explain how the design of a medicinal product affects drug absorption.
4	Critically evaluate the formulation of medicinal products taking into account factors relating to: the active pharmaceutical ingredient(s), any excipients, target patient groups, the conditions being treated, the indications for the active pharmaceutical ingredient(s).

Indicative Module Content

The module focusses on the design of safe and effective medicines for a variety of patient groups, utilising physicochemical data and the intended route of administration to develop commonly used dosage forms including tablets, capsules, and liquids. Topics include: how active pharmaceutical ingredients become medicines and the stages product development; factors influencing design of medicines; formulation principles relating to various basic dosage forms; stability and packaging of medicines; quality assurance principles and procedures; drug release from medicines; physiological factors affecting drug absorption; physicochemical characteristics of the drug and the dosage form being administered. This module highlights the need for ensuring health and well-being (SGD 3 good health and well-being), while making conscious decisions about the use and disposal of resources required to provide a quality learning experience with minimal environmental impact (SDG 12 responsible consumption and production).

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Module Delivery

Lectures, coursework sessions (including laboratory and non-laboratory based exercises & tutorials) and directed study.

Indicative Student Workload	Full Time	Part Time
Contact Hours	75	N/A
Non-Contact Hours	225	N/A
Placement/Work-Based Learning Experience [Notional] Hours	N/A	N/A
TOTAL	300	N/A
Actual Placement hours for professional, statutory or regulatory body		

ASSESSMENT PLAN

If a major/minor model is used and box is ticked, % weightings below are indicative only.

Component 1

Type:	Examination	Weighting:	50%	Outcomes Assessed:	1, 3
Description:	Closed book written examination				

Component 2

Type:	Coursework	Weighting:	50%	Outcomes Assessed:	2, 4
Description:	Group based scientific report				

MODULE PERFORMANCE DESCRIPTOR

Explanatory Text

Component 1 (EX1) comprises 50% of the module grade. A minimum of a Grade D or better is required to pass this assessment. Component 2 (CW1) comprises 50% of the module grade. A minimum of a Grade D or better is required to pass this assessment. Overall Grade D or better is required to pass this module. Non-submission of either component will result in an NS grade for the module.

		Examination:						
		A	**B**	**C**	**D**	**E**	**F**	**NS**
Coursework:	**A**	A	A	B	B	E	E	
	B	A	B	B	C	E	E	
	C	B	B	C	C	E	E	
	D	B	C	C	D	E	E	
	E	E	E	E	E	E	F	
	F	E	E	E	E	F	F	
	NS	Non-submission of work by published deadline or non-attendance for examination						

Module Requirements

Prerequisites for Module	Successful completion of MPharm Stage 1 or equivalent.
Corequisites for module	None.
Precluded Modules	None.

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INDICATIVE BIBLIOGRAPHY

1	AULTON, M.E. ed., 2022. *Aulton's Pharmaceutics: The Design and Manufacture of Medicines.* Sixth edition. Edinburgh: Churchill Livingstone.
2	ALLEN, L.V., POPOVICH, N.G. and ANSEL, H.C.. 2011. *Ansel's Pharmaceutical Dosage Forms and Drug Delivery Systems.* Ninth edition. Philadelphia: Lippincott Williams & Watkins.
3	FLORENCE, A.T. and ATTWOOD, D., 2016. *Physicochemical Principles of Pharmacy.* Sixth edition. London: Pharmaceutical Press.
4	MOYNIHAN, H. & CREAN, A., 2009. *The Physicochemical Basis of Pharmaceuticals*. First edition. Oxford: Oxford University Press.