

Module Title:	Pharm Chemistry, Formulation and Compounding
Language of Instruction:	English
Credits:	10
NFQ Level:	6
Module Delivered In	No Programmes
Teaching & Learning Strategies:	The module will be delivered as two one-hour theory classes for thirty weeks and one three- hour practical class for fifteen weeks. Group and peer learning will be facilitated during the preparation of assignments and practicals. Any course-related issue or questions that may arise will be discussed at lectures.
Module Aim:	The aim of this module is to impart knowledge of fundamental chemistry and to provide practical training in this subject area with due regard to best practice and safety. It also aims to give the student foundation level knowledge of the skills and competencies of formulation and compounding in the modern pharmacy.

Learning Outcomes	
<i>On successful completion of this module the learner should be able to:</i>	
LO1	Interpret the basic concepts of atomic and molecular structures and bonding of simple chemicals and use the periodic table.
LO2	Interpret the basic principles of solution chemistry.
LO3	Understand the concepts of acidity and basicity and pH as they apply to biological systems.
LO4	Perform the calculations involved in solution preparation.
LO5	Perform designated practical exercises in the area of solution preparation with due regard to accuracy and precision, practical dexterity and good laboratory practice.
LO6	Prepare simple pharmaceutical products from first principles
LO7	Appreciate the critical importance of precise dosage: accurate weighing and volume delivery, sample preparation and reporting in the preparation and manufacture of medicines
LO8	Source information in a practical way from pharmacopoeiae and other sources
LO9	Explain the principles underlying good manufacturing practices as applied to pharmaceutical industries.
LO10	Handle drugs and their excipients with the requisite level of care with regard at all times to the health and safety of both the patient and pharmaceutical staff

Pre-requisite learning
Module Recommendations <i>This is prior learning (or a practical skill) that is recommended before enrolment in this module.</i>
No recommendations listed
Incompatible Modules <i>These are modules which have learning outcomes that are too similar to the learning outcomes of this module.</i>
No incompatible modules listed
Co-requisite Modules
No Co-requisite modules listed
Requirements <i>This is prior learning (or a practical skill) that is mandatory before enrolment in this module is allowed.</i>
No requirements listed

Module Content & Assessment

Indicative Content

Theory 1

Atoms, atomic structure, elements, compounds and mixtures. The periodic table of the elements, molecules and bonding. The Mole, molar mass and molar volume. Concentration, molarity, normality and standard solutions. Polarity of compounds and solvents. Solutions and solubility. Concentrated, dilute, saturated and supersaturated solutions. Precipitates, suspensions and colloids. Acids, bases, buffers, the pH scale and indicators. Introduction to organic chemistry, homologous series

Theory 2

Structures of common pharmaceutical products: vitamins, analgesics, anti-inflammatory medicines and antibiotics. Detergents and surfactants. Drug classification. Pharmacopoeial monographs. The British Pharmacopoeia. The USP, Martindale, MIMS, etc. Terms and acronyms. Basic pharmaceutical acronyms FDA, GMS, OTC, ICH, etc. Liquid medicines. Structure of emulsions. Emollients. Suppositories, sticks, gels. Dispersed systems. Aerosols & suspensions. Topical preparations. The structure and function of the skin, tooth and hair. Preparation of creams, emulsions and lotions. Ointments, pomades. Dentifrices. Introduction to solid dosage forms. Tablets, capsules and other solid products. Liquid preparations. Syrups and elixirs, linctuses. Advantages of delivery. Stability. Shelf-life.

Practicals

The scheduled practicals will develop the following skills: Accuracy and precision in liquid measurement, standard solution preparation, titration, measurement of pH, effect of buffers, and analyses of common pharmaceutical products

Assessment Breakdown	%
Continuous Assessment	20.00%
Practical	30.00%
End of Module Formal Examination	50.00%

Special Regulation

Students must achieve a minimum grade (35%) in both the practical/CA and final examination.

Continuous Assessment

Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date
Examination	Exam	1,2,3,4,9	10.00	n/a
Examination	Exam	1,2,3,4,9	10.00	n/a

No Project

Practical

Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date
Practical/Skills Evaluation	Practical lab book	5,6,7,8,10	30.00	Sem 1 End

End of Module Formal Examination

Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date
Formal Exam	3 hour exam	1,2,3,4,7,8,9	50.00	End-of-Semester

SETU Carlow Campus reserves the right to alter the nature and timings of assessment

Module Workload

Workload: Full Time		
<i>Workload Type</i>	<i>Frequency</i>	<i>Average Weekly Learner Workload</i>
Lecture	30 Weeks per Stage	2.00
Laboratory	30 Weeks per Stage	1.50
Estimated Learner Hours	30 Weeks per Stage	2.50
Total Hours		180.00

