

Module Title:	Organic and Physical Chemistry 1	
Language of Instruction:	English	
Credits:	5	
NFQ Level:	6	
Module Delivered In	3 programme(s)	
Teaching & Learning Strategies:	This module will be taught in three one hour theory classes and one three hour practical session per week. To consolidate lectures and practicals, students will normally be required to carry out assignments and prepare a weekly practical report analyzing their own research and results. 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 organic and physical chemistry and to provide practical training in this subject area with due regard to best practice and safety.	
Learning Outcomes		
On successful completion of this module the learner should be able to:		
LO1	Draw the structures and shapes of the main types of organic chemicals	
LO2	Draw the reaction mechanisms of some of the main reactions in organic and synthetic organic chemistry.	
LO3	List, describe and explain the tests used to identify unknown organic chemicals.	
LO4	Discuss and explain kinetic theory (the order and rate of reaction, the activation energy of reaction and the half -life of a reaction) and carry out relevant mathematical calculations based on reaction rate data.	
LO5	Perform and interpret designated laboratory exercises with due regard to safety and best practice.	
Pre-requisite learning		
Module Recommendations This is prior learning (or a practical skill) that is recommended before enrolment in this module.		
4504	SCIE H1111	Chemistry
Incompatible Modules These are modules which have learning outcomes that are too similar to the learning outcomes of this module.		
No incompatible modules listed		
Co-requisite Modules		
No Co-requisite modules listed		
Requirements This is prior learning (or a practical skill) that is mandatory before enrolment in this module is allowed.		
No requirements listed		

Module Content & Assessment

Indicative Content

Aliphatic Hydrocarbons

Aliphatic Hydrocarbons. Hybridisation. Physical properties, shapes and reactions of alkanes, alkenes, alkynes and cyclic aliphatic compounds. Conjugated systems

Stereochemistry

Stereochemistry, optical activity, optical purity, polarimetry, geometric isomers

Kinetics

Rate equations, collision theory, Arrhenius equation, activation energy, catalysis.

Practicals

One "dry" practical covering relevant calculation. Subsequent practicals will develop the following synthetic skills - distillation, reflux, recrystallisation, soxhlet extraction, multi-step product synthesis, yield calculation, product purity determination, reaction rate studies, solvent extraction and other specialised reactions.

Assessment Breakdown	%
Continuous Assessment	60.00%
Practical	40.00%

Special Regulation

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

Continuous Assessment

Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date
Examination	3 x 1 hour CA exams	1,2,3,4	60.00	n/a

No Project

Practical

Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date
Practical/Skills Evaluation	Practical Laboratory report book	5	40.00	End-of-Semester

No End of Module Formal Examination

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	12 Weeks per Stage	3.00
Laboratory	12 Weeks per Stage	3.00
Estimated Learner Hours	15 Weeks per Stage	3.53
Total Hours		125.00

Module Delivered In

Programme Code	Programme	Semester	Delivery
CW_SAPHA_B	Bachelor of Science (Honours) in Pharmaceutics and Drug Formulation	3	Mandatory
CW_SAASC_D	Bachelor of Science in Analytical Science	3	Mandatory
CW_SASCI_C	Higher Certificate in Science in Applied Biology or Applied Chemistry	3	Group Elective 2