Module Descriptor

Title	Chemistry & Reactions		
Session	2025/26	**Status**	Published
Code	CHEM07011	**SCQF Level**	7
Credit Points	20	**ECTS (European Credit Transfer Scheme)**	10
School	**Computing, Engineering and Physical Sciences**		
Module Co-ordinator	Dr A McLean		

Summary of Module

The syllabus is as follows: Fundamental properties, preparation, commercial significance, reactions and characterisation of : alkanes, alkenes, alkynes, alkyl halides, alcohols, aldehydes, ketones, amines, Grignard reagents, carboxylic acids and acyl derivatives. Reaction mechanisms. Introduction to aromaticity and the reactions of benzene. Applications of organic chemistry.

Chemical equilibrium: dynamic equilibrium, the constants Kc and Kp., basic calculations, extent of reaction, solubility equilibria, pH. Thermodynamics: first law, Hess calculations, bond energies: descriptive introduction to the second law, entropy, Gibbs free energy, relation to equilibrium constant, thermodynamic tables.

The graduate attributes relevant to this module are;

Academic: Critical thinker, analytical, inquiring, knowledgeable, literate, problem solver, autonomous.

Personal: Effective communicator, influential, motivated, team-worker.

Professional: collaborative.

Module Delivery Method	**On-Campus**[1]	**Hybrid**[2]	**Online**[3]	**Work -Based Learning**[4]
	☒	☐	☐	☐

[1] Where contact hours are synchronous/ live and take place fully on campus. Campus-based learning is focused on providing an interactive learning experience supported by a range of digitally-enabled asynchronous learning opportunities including learning materials, resources, and opportunities provided via the virtual learning environment. On-campus contact hours will be clearly articulated to students.

[2] The module includes a combination of synchronous/ live on-campus and online learning events. These will be supported by a range of digitally-enabled asynchronous learning opportunities including learning materials, resources, and opportunities provided via the virtual learning environment. On-campus and online contact hours will be clearly articulated to students.

[3] Where all learning is solely delivered by web-based or internet-based technologies and the participants can engage in all learning activities through these means. All required contact hours will be clearly articulated to students.

[4] Learning activities where the main location for the learning experience is in the workplace. All required contact hours, whether online or on campus, will be clearly articulated to students

Campuses for Module Delivery	☐ Ayr ☐ Dumfries		☐ Lanarkshire ☐ London ☒ Paisley		☐ Online / Distance Learning ☐ Other (specify)	
Terms for Module Delivery	Term 1	☐	Term 2	☒	Term 3	☐
Long-thin Delivery over more than one Term	Term 1 – Term 2	☐	Term 2 – Term 3	☐	Term 3 – Term 1	☐

Learning Outcomes	
L1	Display a basic knowledge of organic, physical and inorganic chemistry ideas, including using various information sources.
L2	Demonstrate ability to communicate chemical knowledge and information both qualitatively and quantitatively.
L3	Demonstrate an appreciation of work in a wet-laboratory environment and the practical application of chemical reactions, tasks and methods.
L4	Demonstrate an appreciantion of general lab protocols, safety proceedures and risks as exemplified by the completion of LABSKILLS on-line course.
L5	

Employability Skills and Personal Development Planning (PDP) Skills	
SCQF Headings	**During completion of this module, there will be an opportunity to achieve core skills in:**
Knowledge and Understanding (K and U)	**SCQF 7** A basic knowledge of functional group reactivity in organic chemistry through use of the general principles organic molecule reactivity. A rudimentary understanding of the principles of chemical equilibrium and thermodynamics.
Practice: Applied Knowledge and Understanding	**SCQF 7** Developing a systematic approach to understanding basic organic chemical transformations. The use of basic calculations in developing a quantitative understanding of basic chemical systems. Developing a knowledge of fundamental laboratory techniques andsafe practice Interpretation of raw data in terms of chemical theory and presentation of results in laboratory reports.
Generic Cognitive skills	**SCQF 7** Developing the systematic ability to use simple diagrams as short- hand for 3D structures. Application of basic mathematics (algebraic manipulation, graph drawing and interpretation) to quantitative and qualitative understanding of chemical systems.

	Interpretation of laboratory results in terms of structure and theory. Accurate record keeping and report writing. Producing log books and workbooks as self produced learning resources.
Communication, ICT and Numeracy Skills	**SCQF 7** The ability to compile, evaluate, interpret and present information from a wide variety of sources. The use of basic numerical and graph skills. The ability to produce written reports using word and excel.
Autonomy, Accountability and Working with Others	**SCQF 7** Developing a pro-active approach towards to learning through compilation of reaction log book, workshop book and short test results. Working in small groups to solve specified problems.

Prerequisites	**Module Code**	**Module Title**
	Other A pass at H level Chemistry or its equivalent	
Co-requisites	**Module Code**	**Module Title**

Learning and Teaching	
In line with current learning and teaching principles, a 20-credit module includes 200 learning hours, normally including a minimum of 36 contact hours and maximum of 48 contact hours. This module covers a wide variety of theoretical, conceptual and practical areas, which require a range of knowledge and skills to be displayed and exercised. Delivery of its syllabus content therefore involves a diversity of teaching and assessment methods suitable to the learning outcomes of the module; these include formal lectures, structured tutorials (work closely integrated with the lecture material), laboratory exercises to develop practical skills and familiarisation with equipment and experimental techniques, completion and submission of written coursework making use of appropriate forms of IT and VLE, and independent study.	
Learning Activities During completion of this module, the learning activities undertaken to achieve the module learning outcomes are stated below:	**Student Learning Hours** (Note: Learning hours include both contact hours and hours spent on other learning activities)
Lecture / Core Content Delivery	14
Tutorial / Synchronous Support Activity	10
Laboratory / Practical Demonstration / Workshop	24
Independent Study	152
Please select	
Please select	
TOTAL	200

Indicative Resources
The following materials form essential underpinning for the module content and ultimately for the learning outcomes: Lastext Edn Chemistry-1 suite of booklets; Handbook, Lab Series D D Ebbing and S D Gammon, General Chemistry,11th Edition, 2016, Blaswell's G L Patrick, Beginning Organic Chemistry 2, Oxford University Press, 1997 0-198559356 547/PAT
(N.B. Although reading lists should include current publications, students are advised (particularly for material marked with an asterisk*) to wait until the start of session for confirmation of the most up-to-date material)

Attendance and Engagement Requirements
In line with the Student Attendance and Engagement Procedure, Students are academically engaged if they are regularly attending and participating in timetabled on-campus and online teaching sessions, asynchronous online learning activities, course-related learning resources, and complete assessments and submit these on time. **For the purposes of this module, academic engagement equates to the following:** The School of Computing, Engineering and Physical Sciences considers attendance and engagement to mean a commitment to attending, and engaging in, timetabled sessions. You will scan your attendance via the scanners each time you are on-campus and you will login to the VLE several times per week. Where you are unable to attend a timetabled learning session due to illness or other circumstance, you should notify the Programme Leader that you cannot attend. Across the School an 80% attendance threshold is set. If you fall below this, you will be referred to the Student Success Team to see how we can best support your studies.

Equality and Diversity
The University's Equality, Diversity and Human Rights Procedure can be accessed at the following link: UWS Equality, Diversity and Human Rights Code. Aligned with the University's commitment to equality and diversity, this module supports equality of opportunity for students from all backgrounds and learning needs. Using the VLE, material will be presented electronically in formats that allow flexible access and manipulation of content. This module complies with University regulations and guidance on inclusive learning and teaching practice. This module has lab-based teaching and as such you are advised to speak to the Module Co-ordinator to ensure that specialist assistive equipment, support provision and adjustment to assessment practice can be put in place, in accordance with the University's policies and regulations.
(N.B. Every effort will be made by the University to accommodate any equality and diversity issues brought to the attention of the School)

Supplemental Information

Divisional Programme Board	**Engineering Physical Sciences**
Overall Assessment Results	☐ **Pass / Fail** ☒ **Graded**
Module Eligible for Compensation	☒ **Yes** ☒ **No** **If this module is eligible for compensation, there may be cases where compensation is not permitted due to**

	programme accreditation requirements. Please check the associated programme specification for details.
School Assessment Board	Physical Sciences
Moderator	Dr C McHugh
External Examiner	Dr G Patrick
Accreditation Details	This module is accredited by the Royal Society of Chemistry (RSC) as part of the BSc (Hons) Chemistry programme and the Chartered Society of Forensic Sciences (CSFS) as part of the BSc (Hons) Forensic Science programme
Module Appears in CPD catalogue	☒ **Yes** ☐ **No**
Changes / Version Number	3.00 Clarified Mod Summary (no changes to syllabus). Introduced LO4. Updated; Att & Eng, Div & Eq and External Examiner

Assessment (also refer to Assessment Outcomes Grids below)
Assessment 1
100% courework based on small group workshop submissions, individual short tests, lab proformas and full, written reports.
Assessment 2
Assessment 3
(N.B. (i) Assessment Outcomes Grids for the module (one for each component) can be found below which clearly demonstrate how the learning outcomes of the module will be assessed. (ii) An indicative schedule listing approximate times within the academic calendar when assessment is likely to feature will be provided within the Student Module Handbook.)

Component 1							
Assessment Type	**LO1**	**LO2**	**LO3**	**LO4**	**LO5**	**Weighting of Assessment Element (%)**	**Timetabled Contact Hours**
Coursework	☒	☒	☒	☒	☐	100	

Component 2							
Assessment Type	**LO1**	**LO2**	**LO3**	**LO4**	**LO5**	**Weighting of Assessment Element (%)**	**Timetabled Contact Hours**
	☐	☐	☐	☐	☐		

Component 3

Assessment Type	LO1	LO2	LO3	LO4	LO5	Weighting of Assessment Element (%)	Timetabled Contact Hours
	☐	☐	☐	☐	☐		
Combined total for all components						100%	hours

Change Control

What	When	Who
Re-wrote & clarified module summary (making no changes to syllabus) Introduced LO4 reflecting on-going use of LABSKILLS training software. Updated Att & Eng, Div & Eq reqs as well as external examiner.	March 2025	Dr A McLean