Module Descriptor

Title	Safety, Health and Environmental Protection		
Session	2025/26	**Status**	Published
Code	CHEM09005	**SCQF Level**	9
Credit Points	20	**ECTS (European Credit Transfer Scheme)**	10
School	**Computing, Engineering and Physical Sciences**		
Module Co-ordinator	Iain McLellan		

Summary of Module

This module adopts a holistic approach to, health and safety, the earth environment and human's impact upon that environment. It gives a broad introduction to earth systems to provide a contextual framework from which to explore the broader issues of human activity. It is concerned with the safe use and handling of toxic and hazardous substances, considering the potential impact on human health and the environment. The nature and evaluation of hazards, especially toxic hazards, will be discussed.

The behaviour of substances in the environment, their dispersal and ultimate environmental fate, will be exemplified. Consideration will be given to safety and safe handling of materials in the workplace. Procedures for the treatment and/or disposal of waste materials – discharges to atmosphere, liquid effluent and solid waste – will be discussed. All the topics covered within this module will be related to the principles of sustainability and the UN Sustainable Development Goals.

The legislative and regulatory frameworks covering aspects of safety and environmental management will be developed as appropriate. Case studies and laboratory programme are used to exemplify the theoretical aspects of this broad topic area.

The Graduate Attributes relevant to this module are:

- Academic: critical thinker, environmental problem solving, autonomy
- Personal: motivation, time keeping, effective written and oral communicator
- Vocational: collaboration, research, analytical techniques, COSHH risk assessments

Module Delivery Method	On-Campus[1] ☒	Hybrid[2] ☐	Online[3] ☐	Work -Based Learning[4] ☐
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	Demonstrate a critical awareness of the interaction between human activity and wellbeing of lifeforms (including humans) in the environment and workplace.
L2	Identify and integrate the requirements for handling and disposal of representative solid, liquid, and airborne waste materials, including sampling, analysis, and treatment
L3	Discuss critically the legal and regulatory framework for workplace and environmental protection.
L4	Carry out a variety of laboratory investigations related to a range of environmental, health and safety scenarios. Discussing results in an appropriate manner where possible referring to current legislation / control measures.
L5	Interpret, evaluate and present a range of numerical data and environmental topics through written reports and oral presentations.

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 9** A broad integrated knowledge of the interactions between human activities, hazardous substances and the welfare of human and environmental systems. A critical understanding of the requirements of safe and acceptable handling of materials in the workplace and of their discharge into the environment. Appropriate familiarity with legal / regulatory frameworks

[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

Practice: Applied Knowledge and Understanding	**SCQF 9** Use a selection of skills, techniques and practices in identifying, analyzing and evaluating workplace and environmental hazards and appropriate procedures for the safe use and disposal of hazardous materials. Carry out routine and more open ended investigations and enquiries into qualitative and quantitative evaluation of potential workplace and environmental hazards
Generic Cognitive skills	**SCQF 9** Undertake critical analysis, evaluation and synthesis of ideas, concepts and information related to workplace and environmental issues. Identify and analyse routine professional problems and issues related to workplace and environmental chemical hazards. Draw on a range of sources in making judgments on issues of workplace and environmental safety.
Communication, ICT and Numeracy Skills	**SCQF 9** Make formal and informal presentations on mainstream issues to a range of audiences (laboratory reports, assignments, oral presentation etc). Use a range of IT applications to research and present aspects of environmental concern. Interpret, use and evaluate numerical, graphical and non-numerical information to achieve goals.
Autonomy, Accountability and Working with Others	**SCQF 9** Exercise autonomy and initiative in investigations and in information acquisition. Practice working with others taking account of roles and responsibilities. Deal with certain ethical and professional issues under appropriate guidance.

Prerequisites	**Module Code**	**Module Title**
	Other There are no pre-requisites for this module, however students may find it helpful to have done chemistry at SCQF level 7	
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.	
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	28
Laboratory / Practical Demonstration / Workshop	20
Independent Study	152
Please select	
Please select	

Please select	
TOTAL	200

Indicative Resources
The following materials form essential underpinning for the module content and ultimately for the learning outcomes: Baird, C. and Cannon, M. "Environmental Chemistry" Palgrave MacMillan. Harrison, R.M., (ed) "Pollution: causes, effects and controls" 5th Edition RSc Publishing Health & Safety Executive website Scottish Environment Protection Agency (SEPA) website Scottish Air Quality database website vanLoon, G.W. and Duffy, S.J.(2017) "Environmental Chemistry: global perspective" Oxford University Press
(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	Alastair Marr
External Examiner	Martin Paterson
Accreditation Details	Royal Society of Chemistry
Module Appears in CPD catalogue	☐ **Yes** ☒ **No**
Changes / Version Number	2.20 Update of Learning Outcome 1 Attendance and Engagement Requirement update Equality and Diversity update

Assessment (also refer to Assessment Outcomes Grids below)
Assessment 1
50%: Unseen, invigiliated test
Assessment 2
50%:Coursework: laboratory, written assessments, oral presentation
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**
Unseen test	☒	☒	☒	☐	☐	50	2

Component 2							
Assessment Type	**LO1**	**LO2**	**LO3**	**LO4**	**LO5**	**Weighting of Assessment Element (%)**	**Timetabled Contact Hours**
Coursework	☒	☒	☒	☒	☒	50	0

Labwork: LO3,4 Written assessments: LO1,2 Presentation: LO5							

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**
Update of Learning outcome 1	11/03/2025	Iain McLellan
Attendance & Engagement Requirements	11/03/2025	Iain McLellan
Equality and Diversity update	11/03/2025	Iain McLellan