University of the West of Scotland Module Descriptor

Session: 2024/25

Title of Module: Physical Chemistry 2					
Code: CHEM08001	SCQF Level: 8 (Scottish Credit and Qualifications Framework)	Credit Points: 20	ECTS: 10 (European Credit Transfer Scheme)		
School: School of Computing, Engineering and Physical Sciences					
Module Co-ordinator: Andrew McLean					
Summary of Module					
 Physical Chemistry is concerned with theories, measurements and interpretations of experimental information to gain an understanding of the nature of matter and of the rates and equilibrium positions in reactions and processes. The lecture course will cover aspects of kinetics, spectroscopy, thermodynamics, electrochemistry and phase equilibria. The emphasis will be on the application of techniques and of theories to practical situations. This will involve both tutorial (workshop) activities and a laboratory programme designed to complement and illustrate the lecture materials. The graduate attributes relevant to this module are; Academic: Critical thinker, analytical, inquiring, knowledgeable, literate, problem solver, autonomous. 					

Professional: collaborative. •

Module Delivery Method						
Face-To- Face	Blended	Fully Online	HybridC	HybridO	Work-based Learning	
~	✓					
Face-Io-Face Term used to desc same room for the Blended A mode of delivery assessment activiti of face-to-face, onl must be described Fully Online Instruction that is s used terms distance HybridC Online with mandate HybridO	ribe the traditional c whole provision. of a module or a pr ies, student support ine and blended mc as blended with cle colely delivered by w ce learning and e lea tory face-to-face learni	lassroom environme ogramme that involv and feedback. A pro idules. If an online pr arly articulated deliv reb-based or internet arning. rning on Campus ng on Campus	ent where the studer ves online and face- ogramme may be co rogramme has any o ery information to m t-based technologie:	nts and the lecturer r to-face delivery of le onsidered "blended" compulsory face-to- nanage student expe s. This term is used	neet synchronously in the earning, teaching and if it includes a combination face and campus elements it actations to describe the previously	

Work-based Learning Learning activities where the main location for the learning experience is in the workplace.

Campus(es) for Module Delivery

The module will normally be offered on the following campuses / or by Distance/Online Learning: (Provided viable student numbers permit)						
Paisley: Ayr: Dumfries: Lanarkshire: London: Distance/Online Learning: Other:						Other:
\checkmark						

Term(s) for Module Delivery						
(Provided viable student numbers permit).						
Term 1 🗸 Term 2 Term 3						

Learning Outcomes: ((maximum of 5 statements)			
On successful completi L1. Demonstrate familia kinetics, thermodynami L2. Apply knowledge an investigation and proble	ion of this module the student will be able to: arity with and application of basic principles and methodologies of ics, electrochemistry, spectroscopy and phase behaviour nd understanding of principles and concepts of physical chemistry to em solving			
Employability Skills a	nd 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 Level 8. A broad knowledge of the main areas of physical chemistry, with a detailed knowledge of selected aspects of the subject.			
Practice: Applied Knowledge and Understanding	SCQF Level 8. Use a range of laboratory and numerical skills to explore the applications of theory. Carry out routine investigations into aspects of the subject and of relevant issues.			
Generic Cognitive skills	SCQF Level 8. Undertake critical analysis, evaluation and synthesis of ideas using concepts and information within relevant areas of physical chemistry. Use a range of approaches to tackle and solve routine problems in physical chemistry Critically evaluate information and approaches to the solution of problems in physical chemistry.			
Communication, ICT and Numeracy Skills	SCQF Level 8. Use a range of standard applications to the evaluation of numerical information Present complex information in a variety of forms			

Autonomy, Accountability and Working with others	SCQF Level 8. Exercise autonomy and initiative in investigation and processing of relevant materials.				
	Operate in group situations taking account of own and others' roles and contributions.				
Pre-requisites:	Before undertaking this module the student should have undertaken the following:				
	Module Code:Module Title:CHEM07011Chemistry & Reactions				
	Other: Or ,suitable appropriate background				
Co-requisites	Module Code:	Module Title:			

* Indicates that module descriptor is not published.

Learning and Teaching

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 (Normally totalling 200 hours): (Note: Learning hours include both contact hours and hours spent on other learning activities)
Lecture/Core Content Delivery	22
Tutorial/Synchronous Support Activity	10
Laboratory/Practical Demonstration/Workshop	16
Independent Study	152
	200 Hours Total

**Indicative Resources: (eg. Core text, journals, internet access)

The following materials form essential underpinning for the module content and ultimately for the learning outcomes:

P Atkins and J de Paula, Atkins' "Elements of Physical Chemistry" Oxford University Press, 7th Edition, 2016.

Physical Chemistry II, Reference Booklet, University of the West of Scotland. 2017.

(**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)

Engagement Requirements

In line with the Academic Engagement Procedure, Students are defined as academically engaged if they are regularly engaged with timetabled teaching sessions, course-related learning resources including those in the Library and on the relevant learning platform, and complete assessments and submit these on time. Please refer to the Academic Engagement Procedure at the following link: <u>Academic engagement procedure</u>

Supplemental Information

Programme Board	Physical Sciences
Assessment Results (Pass/Fail)	No
Subject Panel	Physical Sciences
Moderator	Dr A Marr
External Examiner	Prof M Paterson
Accreditation Details	This module is accredited by IChemE as part of BEng(Hons) Chemical Engineering programme. This module is accredited by the Royal Society of Chemistry (RSC) as part of the BSc (Hons) Chemistry Programme.
Changes/Version Number	3.13 updating of indicative resources

Assessment: (also refer to Assessment Outcomes Grids below)

(a) : Class Test (unseen) (50 %)

(b) continuous assessment worth 50% of the final mark

The continuous assessment component in this module will consist of the following elements: (i) one written assignments worth 10% of the final mark, (ii) Tutorial/Workshops worth 10% of the final mark, (iii) Short-Class Test worth 10% of the final mark, and (iv) Laboratory Reports worth 20% of the final mark.

(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 Handbook.)

Assessment Outcome Grids (Footnote A.)

Component 1

Assessment Type (Footnote B.)	Learning Outcome (1)	Learning Outcome (2)	Weighting (%) of Assessment	Timetabled Contact Hours	

			Element	
Unseen closed book (standard)	\checkmark	\checkmark	50	2

Component 2						
Assessment Type (Footnote B.)	Learning Outcome (1)	Learning Outcome (2)	Weighting (%) of Assessment Element	Timetabled Contact Hours		
Class test (written)	\checkmark	\checkmark	10	2		
Essay	\checkmark	\checkmark	10	0		
Workbook/ Laboratory notebook/ Diary/ Training log/ Learning log	\checkmark	\checkmark	10	0		
Clinical/ Fieldwork/ Practical skills assessment/ Debate/ Interview/ Viva voce/ Oral	\checkmark	\checkmark	20	0		
Combined Total For All Components100%4 hours						

Footnotes

A. Referred to within Assessment Section above

B. Identified in the Learning Outcome Section above

Note(s):

- 1. More than one assessment method can be used to assess individual learning outcomes.
- Schools are responsible for determining student contact hours. Please refer to University Policy on contact hours (extract contained within section 10 of the Module Descriptor guidance note). This will normally be variable across Schools, dependent on Programmes &/or Professional requirements.

Equality and Diversity

This module is suitable for any student with appropriate chemistry background, however it should be noted that in order for you to complete this module the laboratory element of coursework will require to be undertaken, disability support can be provided where necessary, consequently, if disability support is needed to complete this part of the module, then the University's Health and Safety Officer should be consulted to make sure that safety in the laboratory is not compromised.

Current University Policy on Equality and Diversity applies. <u>UWS Equality and Diversity Policy</u>

(N.B. Every effort will be made by the University to accommodate any equality and diversity issues brought to the attention of the School)