Module Descriptor

Title	Principles of Physics		
Session	2025/26	**Status**	Published
Code	PHYS06001	**SCQF Level**	6
Credit Points	10	**ECTS (European Credit Transfer Scheme)**	-
School	**Computing, Engineering and Physical Sciences**		
Module Co-ordinator	Michael Bowry		

Summary of Module

The purpose of this module is to introduce students to the methods and practices employed in the discipline of Physics. This includes developing effective and reasoned solutions to problems, completing quantitative tasks accurately and competently, and demonstrating confidence in the manipulation of units. A secondary yet important goal is to expand the student's awareness and understanding of a range of physical phenomena, as well as the impact and reach of Physics in the modern world. This module will help to introduce students to some of the recognised graduate attributes which are part of their academic, personal, and professional development.

Passing this module allows incoming students without the necessary attainment in the pre-requisite area (physics) to proceed to level 7 of their programme of choice.

The content of this module is based upon the SQA Higher Physics Specification document (SCQF Level 6). However, parts of the module are designed to address specific 'skill gaps' typically observed for incoming SCQF Level 7 undergraduate students, particularly with regards to uncertainties and units. The module contains a snapshot of material encountered at level 7 and beyond.

Principles of Physics is delivered in Term 3. It consists of 5 teaching days, each comprised of a 2-hour morning lecture and a tutorial in the afternoon, for a total contact time of 20 hours. Formative exercises may take place towards the end of each lecture (e.g. a quiz-style review and/or Q&A) and during the tutorial sessions. The module is assessed via a closed-book class test which takes place on campus at Paisley. Students must complete a total of x3 10-mark questions across two sections (A and B), with a choice of questions in section B. The nominal time for completion is 2 hours.

The module begins by examining the role of Physics in relation to other STEM subjects and the types of skills utilised by Physicists. The landscape of forces and particles organised by the standard model will be briefly examined. The first lecture will focus primarily on dimensional analysis (L1), uncertainties, and the statistical analysis of experimental data (L2). These core skills will be revisited during subsequent sessions. Subsequent lectures will focus on physical phenomena, such as the basic principles of mechanics, relativity and special relativity (L3), atomic spectra (L4), electromagnetism (L5), and circuits. Elements of calculus may be introduced where appropriate. It is appreciated that together with the Physics / Physics with Education programmes, Physics with Nuclear Technology represents a destination for prospective undergraduate students. Efforts will be made to include elements of nuclear physics in the curriculum where possible.

The independent study time (20 hours) matches the contact hours for this module and is very similar to the level 6 maths module. Although this probably represents a minimum commitment from students, it is perhaps appropriate given the accelerated timeframe of the module.

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	Understand and use various units of measurement appropriately.
L2	Comprehend and calculate uncertainties and apply simple statistical analyses.
L3	Understand and apply Newton's laws and the concept of relativity.
L4	Appreciate the discrete nature of the atom and the detection of emission lines.
L5	Understand the behaviour of charged particles in electric and magnetic fields.

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 6** Students will become familiarised with the 'language' of physics, particularly experimental physics (e.g. units, statistics, uncertainties) and problem solving. Students will obtain foundational knowledge regarding classical and modern physics including mechanics, electromagnetism, and special relativity.

[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 6** The applications of key concepts (e.g. in technology and/or research) will be discussed and in some cases demonstrated directly during the lecture. Students will have ample opportunity to apply their knowledge and practice a range of physics problems during the tutorials.
Generic Cognitive skills	**SCQF 6** Students will enhance their numeracy and logic abilities, as well as their overall preparedness for university study.
Communication, ICT and Numeracy Skills	**SCQF 6** Collaborative group working at the whiteboard during tutorial sessions will be encouraged. Peer teaching will happen naturally during these interactions. Tutorial problems will develop a range of abilities, including accurate manipulation of physical data. Students may use the National Instruments ELVIS control software to examine electronic circuits.
Autonomy, Accountability and Working with Others	**SCQF 6** Those choosing to attend this summer school module will have already displayed ownership of their own learning. These qualities will be further developed, with students being encouraged to identify and address their own knowledge gaps, thereby enhancing their preparation for future study. The importance of academic honesty will be instilled throughout the module.

Prerequisites	**Module Code** n/a	**Module Title**
	Other Applicants must satisfy the qualification and/or experience requirements as established in the admission criteria.	
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	10
Tutorial / Synchronous Support Activity	10
Independent Study	20
n/a	
n/a	

n/a	
TOTAL	40

Indicative Resources
The following materials form essential underpinning for the module content and ultimately for the learning outcomes: Module materials will be sufficient and self-contained, however any textbook in introductory level university physics will contain sufficient information regarding physical phenomena. For example, University Physics with Modern Physics 15th Ed., Hugh D. Young and Roger A. Freedman (Pearson). Other resources may be provided where appropriate.
(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. Students will register their attendance via the scanners each time they are on-campus and they will login to the VLE several times per week. Where they are unable to attend a timetabled learning session due to illness or other circumstance, students should notify the Programme Leader. Across the School an 80% attendance threshold is set. If students fall below this, they will be referred to the Student Success Team to see how we can best support their 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. Specialist assistive equipment, support provision and adjustment to assessment practice 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	Mathematics and Physics
Moderator	Ryan Meeten
External Examiner	TBC
Accreditation Details	n/a
Module Appears in CPD catalogue	☐ **Yes** ☒ **No**
Changes / Version Number	2.0 25/26 edition

Assessment (also refer to Assessment Outcomes Grids below)
Assessment 1
Class Test (100%)
Assessment 2
n/a
Assessment 3
n/a
(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**
Class Test	☒	☒	☒	☒	☒	100	2

Component 2							
Assessment Type	**LO1**	**LO2**	**LO3**	**LO4**	**LO5**	**Weighting of Assessment Element (%)**	**Timetabled Contact Hours**
n/a	☐	☐	☐	☐	☐	0	0

Component 3							
Assessment Type	**LO1**	**LO2**	**LO3**	**LO4**	**LO5**	**Weighting of Assessment Element (%)**	**Timetabled Contact Hours**
n/a	☐	☐	☐	☐	☐		
Combined total for all components						100%	2 hours

Change Control

What	When	Who
Moved to new template Main assessment is now by class test, consistent with assessment at levels 7-10.	28/03/2025	M. Bowry