1. **Title of the module**

PHYS0020 (PH020) - Algebra and Arithmetic

1. **School or partner institution which will be responsible for management of the module**

School of Physical Sciences

1. **The level of the module (Level 4, Level 5, Level 6 or Level 7)**

Level 3

1. **The number of credits and the ECTS value which the module represents**

15 credits (7.5 ECTS)

1. **Which term(s) the module is to be taught in (or other teaching pattern)**

Autumn

1. **Prerequisite and co-requisite modules**

None

1. **The programmes of study to which the module contributes**

BSc (Hons) Forensic Science with a Foundation Year

BSc (Hons) Chemistry with a Foundation Year

BSc (Hons) Physics with a Foundation Year

B.Eng Electronic and Communications Engineering with a Foundation Year

B.Eng Computer Systems Engineering with a Foundation Year

This is not available as a wild module.

1. **The intended subject specific learning outcomes.
On successfully completing the module students will be able to:**
2. Understand mathematics in relation to arithmetic and other basic numerical manipulations.
3. Deal with the accuracy of numbers in terms of decimal places and significant figures.
4. Understand areas of logarithmic and exponential mathematics.
5. Solve a range of equations including linear, quadratic, simultaneous, logarithmic and exponential.
6. Split complex fractions by the method of partial fractions.
7. Understand binomial expansions.
8. **The intended generic learning outcomes.
On successfully completing the module students will be able to:**
9. Demonstrate a firm foundation in maths (in combination with similar modules) to facilitate entry into stage 1 of a science- or maths-based degree programmes in the Faculty of Sciences.
10. Solve problems, including an ability to formulate problems in precise terms and to identify key issues and the confidence to try different approaches in order to make progress on challenging problems. Numeracy is subsumed within this area.
11. Use analytical skills – associated with the need to pay attention to detail and to develop an ability to manipulate precise and intricate ideas, to construct logical arguments and to use technical language correctly.
12. Work independently, to use initiative, to organise oneself to meet deadlines and to interact with other people.
13. **A synopsis of the curriculum**

This module covers a range of arithmetic and algebraic aspects of maths, including: Lowest Common Multiples/Highest Common Factors, Significant Figures, Scientific/Engineering Notation, Fractions, Percentages, Indices, Functions, Logarithmic and Exponential Equations, Algebraic Long Division, Factorisation, Quadratic Equations, Linear and Simultaneous Equations, Partial Fractions and Binomial Theorem.

1. **Reading list (Indicative list, current at time of publication. Reading lists will be published annually)**

Core Text:

* Maths: The Core Mathematics for A Level, by Bostock and Chandler, 1994

Supplementary texts:

* Foundations Maths by Croft and Davison, 6th Ed., pub. Addison-Wesley, 2016
* Foundation Mathematics, Stroud & Booth, 2009
1. **Learning and teaching methods**

Total contact hours: 40

Private study hours: 110

Total study hours: 150

1. **Assessment methods**
	1. Main assessment methods

Moodle Test 1 (15%) – 1 hour

Moodle Test 2 (15%) – 1 hour

Examination (70%) – 2 hours

13.2 Reassessment methods

Like-for-like

1. **Map of module learning outcomes (sections 8 & 9) to learning and teaching methods (section12) and methods of assessment (section 13)**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Module learning outcome** | *8.1* | *8.2* | *8.3* | *8.4* | *8.5* | *8.6* | *9.1* | *9.2* | *9.3* | *9.4* |
| **Learning/ teaching method** |  |  |  |  |  |  |  |  |  |  |
| **Private Study** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** |
| *Lectures* | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** |
| *Workshops* | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** |
| **Assessment method** |  |  |  |  |  |  |  |  |  |  |
| Moodle Test 1 | **x** | **x** |  | **x** |  |  | **x** | **x** | **x** | **x** |
| Moodle Test 2 |  |  | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** |
| *Examination* | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** |

1. **Inclusive module design**

The School recognises and has embedded the expectations of current equality legislation, by ensuring that the module is as accessible as possible by design. Additional alternative arrangements for students with Inclusive Learning Plans (ILPs)/declared disabilities will be made on an individual basis, in consultation with the relevant policies and support services.

The inclusive practices in the guidance (see Annex B Appendix A) have been considered in order to support all students in the following areas:

a) Accessible resources and curriculum

b) Learning, teaching and assessment methods

1. **Campus(es) or centre(s) where module will be delivered**

Canterbury

1. **Internationalisation**

In many respects, Mathematics is an international language. The intended learning outcomes within this module are applicable worldwide as part of the universal principles of Mathematics and the building blocks of science.

**FACULTIES SUPPORT OFFICE USE ONLY**

**Revision record – all revisions must be recorded in the grid and full details of the change retained in the appropriate committee records.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Date approved | Major/minor revision | Start date of the delivery of revised version | Section revised | Impacts PLOs (Q6&7 cover sheet) |
| 27/02/19 | Major | September 2019 | 7,8,9,10,12,13,14 | no |
|  |  |  |  |  |

Revised FSO Jan 2018