1. KentVision Code and title of the module

PHYS3040 – Introduction to Astronomy and Light

## Division and School/Department or partner institution which will be responsible for management of the module

Division of Natural Sciences (Physics and ASSA)

## The level of the module (Level 4, Level 5, Level 6 or Level 7)

Level 4

## The number of credits and the ECTS value which the module represents

15 Credits (7.5 ECTS)

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

Autumn

## Prerequisite and co-requisite modules and/or any module restrictions

None

## The course(s) of study to which the module contributes

Compulsory for the following courses:

BSc (Hons) Physics (including with a Foundation Year, a Year in Industry, and a Year Abroad)

BSc (Hons) Physics with Astrophysics (including with a Foundation Year, a Year in Industry, and a Year Abroad)

BSc (Hons) Astronomy, Space Science and Astrophysics (including with a Foundation Year, a Year in Industry, and a Year Abroad)

MPhys Physics (including with a Year Abroad)

MPhys Physics with Astrophysics (including with a Year Abroad)

MPhys Astronomy, Space Science and Astrophysics (including with a Year Abroad)

Not available as an elective module

## The intended subject specific learning outcomes. On successfully completing the module students will be able to:

8.1 Demonstrate knowledge and understanding of the laws of physics in the areas of optics and introductory astronomy.

8.2 Demonstrate knowledge and understanding of physical quantities, their units, and typical values, for optics and introductory astronomy.

8.3 Demonstrate knowledge and understanding of physical phenomena, the terminology used to describe them, and typical circumstances in which they are found to occur, for optics and introductory astronomy.

8.4 Formulate and solve problems in optics and introductory astronomy.

8.5 Quantitatively describe and predict optics and introductory astronomy phenomena using mathematics.

8.6 Comment critically on how telescopes are designed, their principles of operation or their use in astronomy.

## The intended generic learning outcomes. On successfully completing the module students will be able to:

9.1 Demonstrate problem solving skills.

9.2 Demonstrate investigative skills (including information retrieval).

9.3 Demonstrate analytical skills (including working with details and evaluating ideas).

9.4 Demonstrate personal skills working independently (e.g. to use initiative and originality, be organised and meet deadlines).

9.5 Demonstrate ICT skills (e.g. to use Moodle and internet resources).

## A synopsis of the curriculum

This module provides an introduction to astronomy, beginning with our own solar system and extending to objects at the limits of the universe. Straightforward mathematics is used to develop a geometrical optics model for imaging with lenses and mirrors, and this is then used to explore the principles of astronomical telescopes.

## Reading list

## The University is committed to ensuring that core reading materials are in accessible electronic format in line with the Kent Inclusive Practices.

## The most up to date reading list for each module can be found on the university's [reading list pages](https://kent.rl.talis.com/index.html).

## Contact Hours

Private Study: 120

Contact Hours: 30

Total: 150

## Assessment methods

13.1 Main assessment methods

* Problem Set 1 (4 hours) – 10%
* Problem Set 2 (4 hours) – 10%
* Examination (2 hours) – 80%

13.2 Reassessment methods

* Like-for-like

## Map of module learning outcomes (sections 9 & 10) to learning and teaching methods (section 13) and methods of assessment (section 14)

**Module learning outcomes against learning and teaching methods:**

| **Module learning outcome** | 8.1 | 8.2 | 8.3 | 8.4 | 8.5 | 8.6 | 9.1 | 9.2 | 9.3 | 9.4 | 9.5 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Private Study | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** |
| Lectures | **x** | **x** | **x** | **x** | **x** | **x** | **x** |  | **x** |  |  |
| Problem Solving | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** |

**Module learning outcomes against assessment methods:**

| **Module learning outcome** | 8.1 | 8.2 | 8.3 | 8.4 | 8.5 | 8.6 | 9.1 | 9.2 | 9.3 | 9.4 | 9.5 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Problem Sets | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** |
| Examination | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** |

## Inclusive module design

The Division 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

## Campus(es) or centre(s) where module will be delivered

Canterbury

## Internationalisation

Science is an international discipline with widely applicable international resonance. This module presents subject-specific knowledge generated, developed, and refined by scientists around the world. Mastery of the learning outcomes will equip students to apply the knowledge in a wide range of international contexts and these will be addressed in making the content relevant to current global issues. The Division of Natural Sciences is an international community of students and staff and group activities and teaching will provide a platform for internationally-focussed discussion.

**DIVISIONAL USE ONLY**

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

| Date approved | New/Major/minor revision | Start date of delivery of (revised) version | Section revised  (if applicable) | Impacts PLOs (Q6&7 cover sheet) |
| --- | --- | --- | --- | --- |
| Jan 2021 | Major | Sept 2021 | 1, 8-11, 13-14 | Yes |
| 9 Dec 2021 | Minor | Sept 2022 | 13-14 | No |