

Module Details	
Module Title	Pure and Visual Optics
Module Code	OPT4003-B
Academic Year	2021/2
Credits	20
School	School of Optometry and Vision Science
FHEQ Level	FHEQ Level 4

Contact Hours	
Type	Hours
Online Lecture (Asynchronous)	40
Interactive Learning Objects	10
Laboratories	20
Practical Classes or Workshops	16
Directed Study	114

Availability	
Occurrence	Location / Period
BDA	University of Bradford / Academic Year

Module Aims
To introduce students to the principles of geometric optics; to enable the student to apply those principles to the practice of optometry and the human eye; to describe the characteristics of optical instruments; to describe the optics of the human eye.

Outline Syllabus
Positive lenses and images. Negative lenses. Law of refraction. Optics of the Eye, Ametropia. Measuring Ametropia. Optics of Spectacles. Astigmatism. Two or more lenses. Thick lenses. Magnifiers and Telescopes. Accommodation and Presbyopia. Light as a wave. Aberrations and wavefronts. Retinoscopy. Ophthalmoscopy. Mirrors. Derivation of the Paraxial Equation. Matrix methods.

Learning Outcomes	
Outcome Number	Description
01	Calculate the properties of optical systems.
02	Describe the optics of the eye and explain their impact on image quality.
03	Explain how various optical instruments work.
04	Describe what an arrangement of lenses or mirrors does to light.
05	Describe the optical principles underlying optometric practice.
06	Measure important parameters of optical systems.
07	Improve application of numbers through repeated use of simple geometry and algebra.

Learning, Teaching and Assessment Strategy
<p>The module is taught by:</p> <p>a) 40hrs Online lectures (asynchronous) and interactive text.</p> <p>b) 40 min Practical/Workshop each week sampling that week's material (repeated 3 times in a 2hr block to 1/3 of cohort each time)</p> <p>c) Half hour online test (Learning object) which covers that week's material, and repeats previous material as spaced repetition, which contribute 20% to the coursework mark.</p> <p>d) 1 hr/week optics Laboratory and assessment, which contribute 10% to the coursework mark</p>

Mode of Assessment			
Type	Method	Description	Weighting
Summative	Computerised examination	Closed book unseen computerised examination (2 Hrs)	70%
Summative	Coursework - Written	Computerised and/or practical assessment	30%
Referral	Computerised examination	Supplementary assessment: closed book unseen written exam (2 Hrs)	100%

Reading List
To access the reading list for this module, please visit https://bradford.rl.talis.com/index.html

Please note:

This module descriptor has been published in advance of the academic year to which it applies. Every effort has been made to ensure that the information is accurate at the time of publication, but minor changes may occur given the interval between publishing and commencement of teaching. Upon commencement of the module, students will receive a handbook with further detail about the module and any changes will be discussed and/or communicated at this point.