

Access to H.E. National Programme Unit



Unit Title:	Physics of the Senses		
Graded Unit Code:	GA33PHY17	Ungraded Unit Code:	UA33PHY17
Pathway(s):	Health Science and Engineering Construction and the Built Environment		
Module(s):	Science for Health Physics		
Level:	3	Credit Value:	3
Valid from:	1 st August 2014	Valid to:	31 st July 2024

The following QAA grade descriptors must be applied if you are delivering the graded version of this unit:

1	Understanding of the subject
2	Application of knowledge
3	Application of skills
7	Quality

LEARNING OUTCOMES	ASSESSMENT CRITERIA
The learner will:	The learner can:
1. Understand the nature of light and sound	1.1 Explain the difference between the transmission of sound and light
	1.2 Express the relationship between the frequency, wavelength and speed of a wave and use the relationship to solve problems for sound and light
	1.3 Explain refraction and reflection of light and sound
	1.4 Solve problems using the relationship $n_1 \sin \theta_1 = n_2 \sin \theta_2 = c_1 / c_2$
2. Understand the role of the eye in colour vision	2.1 Describe the roles of the curved surfaces of the human eye in producing a focused image on the retina

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LEARNING OUTCOMES	ASSESSMENT CRITERIA
The learner will:	The learner can:
	2.2 Explain the function of rods and cones as transducers
	2.3 Interpret data relating to the trichromatic theory and use this to explain colour vision
3. Understand the role of the ear in hearing	3.1 Describe how the parts of the human ear collect and amplify sound vibrations
	3.2 Explain the role of sensory hairs in the cochlea as transducers
	3.3 Interpret data relating to the change with age in the frequency range of human hearing
4. Understand the reasons for defects in vision and hearing	4.1 Explain the causes of hyperopia (long sight), myopia (short sight) and astigmatism in humans
	4.2 Explain the correction of hyperopia, myopia and astigmatism using lenses
	4.3 Explain the correction of defects of vision using lasers
	4.4 Describe the physical and neurological reasons explaining impaired hearing
	4.5 Evaluate methods for improving hearing, including analogue and digital aids and implant technology