

Access to H.E. National Programme Unit



Unit Title	Quantum Physics		
Graded Unit Code	GA33PHY21	Ungraded Unit Code	UA33PHY21
Pathway(s)	Science and Engineering Construction and the Built Environment		
Module(s)	Physics		
Level	3	Credit Value	3
Valid from	31 st July 2021	Valid to	31 st July 2026

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 skill
7	Quality

LEARNING OUTCOMES	ASSESSMENT CRITERIA
The learner will:	The learner can:
1. Understand how theories of light led to a modern understanding of the photoelectric effect	1.1 Compare the wave theories of light proposed by Newton and Huygens and explain why Newton's theory was preferred
	1.2 Describe and explain the significance of Young's double slit experiments
	1.3 Explain the results of experiments to investigate photoelectric emission
	1.4 Describe Einstein's explanation of photoelectric emission
	1.5 Define work function (ϕ) and threshold frequency (f_0) and solve problems using the photoelectric equation

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2. Understand electron configurations in the atom	2.1	Define the electron volt
	2.2	Explain line spectra for atomic hydrogen in terms of transition of electrons between energy levels
	2.3	Define ionization energy, excitation energy and excitation potential
	2.4	Solve simple problems involving ionization energy, excitation energy and excitation potential
3. Understand Wave-Particle Duality	3.1	Describe evidence for wave-particle duality, e.g. electron diffraction
	3.2	State De Broglie's hypothesis and the equation for the De Broglie wavelength
	3.3	Calculate the De Broglie wavelength for a range of particles