

Faculty	Natural Sciences		
Home Department	Physics and Astronomy		
Module Topic	Waves, Electricity and Magnetism		
Generic Module Name	Physics 152		
Alpha-numeric Code	PHY152		
NQF Level	5		
NQF Credit Value	15		
Duration	Year		
Proposed semester to be offered	Both Semester		
Programmes in which the module will be offered	BSc (Applied Geology) (3011), BSc (Chemical Sciences)(3019), BSc (Computer Science)(3023), BSc (Mathematical and Statistical Sciences)(3031), BSc (Physical Science)(3120)		
Year level	1		
Main Outcomes	<p>On completion of this module students should be able to:</p> <ul style="list-style-type: none"> • Apply the physics principles of vibrations and waves to solve problems. • Apply the physics principles of vibrations and waves to everyday life situations e.g. Light and sound. • Apply the physics principles of introductory electricity and magnetism to solve problems. • Apply the physics principles of introductory electricity and magnetism to everyday life situations. • Work in a laboratory environment and record, represent and interpret data. • Access science texts and communicate in a variety of forms: laboratory report, essay, poster presentation. • Apply basic statistics to measurement and uncertainty in data. 		
Main Content	<ul style="list-style-type: none"> • Mathematics skills required for waves, electricity and magnetism • Simple harmonic motion: Energetics of SHM, simple pendulum, damped oscillations, forced oscillations and resonance • Mechanical waves: Basic wave properties, sinusoidal travelling waves, speed of a wave, energy in wave motion, reflection of waves, interference, standing waves and resonance • Sound: sound waves, intensity and intensity levels, beats, Doppler effect • Electrostatics: point electrical charges, electric field, electric flux, Gauss' law • Electric potential, Electric currents and Resistance, DC circuits • Capacitors and dielectrics. • Magnetic field and forces, motion of charged particle in a B-field • Electromagnetic induction, inductance, AC circuits 		
Pre-requisite modules	None		
Co-requisite modules	None		
Prohibited module Combination	PHY121		
Breakdown of Learning	Hours	Timetable	Other teaching modes

Time		Requirement per week		that does not require time-table
<i>Contact with lecturer / tutor:</i>	84	<i>Lectures p.w.</i>	3	
<i>Assignments & tasks:</i>	0	<i>Practicals p.w.</i>	3	
<i>Practicals:</i>	84	<i>Tutorials p.w.</i>	1	
<i>Assessment:</i>	18			
<i>Selfstudy:</i>	86			
<i>Other: Tutorials</i>	28			
Total Learning Time	300			
Methods of Student Assessment	Continuous Assessment (CA): 60% Final Assessment (FA): 40%			
Assessment Module type	Continuous and Final Assessment (CFA)			