

Faculty	Natural Sciences			
Home Department	Physics and Astronomy			
Module Topic	Waves, Electricity and Magnetism			
Generic Module Name	Physics 121			
Alpha-numeric Code	PHY121			
NQF Level	5			
NQF Credit Value	15			
Duration	Semester			
Proposed semester to be offered.	Second Semester			
Programmes in which the module will be offered	BSc Physical Science (3233) (3120) BSc Applied Geology (3214) (3011) BSc Chemical Sciences (3220) (3019) BSc Computer Science (3221) (3023) BSc Mathematics and Statistical Sciences (3227) (3031)			
Year level	1			
Main Outcomes	<p>On completion of this module students should be able to:</p> <ul style="list-style-type: none"> • Demonstrate knowledge and understanding of introductory vibrations and waves theory and applications in sound • Show knowledge and understanding of geometrical optics and applications of it in everyday life • Be able to work in a laboratory environment and record, represent and interpret data. 			
Main Content	<ul style="list-style-type: none"> • 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 • Geometrical optics: ray optics, reflection and refraction, image formation by mirrors and lenses • 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	MAT105 or MAT103			
Prohibited module Combination	None			
Breakdown of Learning Time	Hours	Time-table Requirement per week		Other teaching modes that does not require time-table
<i>Contact with lecturer / tutor:</i>	42	Lectures p.w.	3	
<i>Assignments & tasks:</i>	14	Practicals p.w.	3	
<i>Practicals:</i>	42	Tutorials p.w.	1	
<i>Assessments</i>	9			
<i>Selfstudy</i>	43			
<i>Other:</i>				
Total Learning Time	150			

Method of Student Assessment	Continuous Assessment (CA): 60% Final Assessment (FA): 40%
Assessment Module type	Continuous and Final Assessment (CFA)