

Module code	SP-1301		
Module Title	Classical Mechanics		
Degree/Diploma	Bachelor of Science (Applied Physics)		
Type of Module	Major Option		
Modular Credits	4	Total student Workload	8 hours/week
		Contact hours	4 hours/week
Prerequisite	A Level Physics or equivalent		
Anti-requisite	SP-1204 Classical Mechanics and TG-1303 Introductory Mechanics for Engineer		
Aims			
The module is designed for students to understand the basics of classical mechanics.			
Learning Outcomes			
<i>On successful completion of this module, a student will be expected to be able to:</i>			
Lower order :	30%	- explain SI system and prefixes, and significant figures. Differentiate the scalar and vector quantities. Define and differentiate displacement, velocity and acceleration. Use the equations of kinematics and Newton's laws to solve various problems. Differentiate between gravitational and elastic potential energy.	
Middle order :	60%	- apply these principles to analyse properties of objects including linear momentum, impulse and centre of mass, to distinguish between inelastic and elastic collisions, to describe properties of rotating objects and to explain torque and angular momentum.	
Higher order:	10%	- evaluate the conditions for static equilibrium of rigid objects - employ the existing models for new applications - work independently in resolving real-life problems applying these theories	
Module Contents			
<ul style="list-style-type: none"> - measurement and units, vectors and vector multiplication - motion in one and two dimensions, analysis of projectile motion - forces and Newton's laws of motion, friction and its properties, kinetic energy and work, potential energy and energy conservation, systems of particles - conservation of momentum, collisions, rotational kinematics and dynamics, conservation of angular momentum, equilibrium and elasticity, gravitation - momentum conservation and rocket motion, motion under a central force, Kepler's laws and planetary motions, satellite motion, Coriolis theorem and gravitational field 			
Assessment	Formative assessment	Tutorials, discussions and feedback	
	Summative assessment	Examination: 60% Coursework: 40% - 3 class tests (10% each) - 1 assignment (10%)	