

Module code

SPP-1203

Type of module

Undergraduate: Applied Physics – Major Core

Classical Mechanics



Modular credits

4

Total student
engagement

56 hours

Prerequisite

None

Anti-requisite

None

Aims

To enable students to understand the basics of classical mechanics.

Module learning outcomes (MLO)

On successful completion of this module, a student will be expected to be able to:

MLO 1

Apply SI units, prefixes, and significant figures to calculate displacement, velocity, and acceleration in one-dimensional motion, and classify physical quantities as scalar or vector.

MLO 2

Distinguish and apply the concepts of gravitational and elastic potential energy, and use equations of kinematics and Newton's laws to solve physical problems.

MLO 3

Apply and analyse the principles of momentum, impulse, and centre of mass; differentiate between inelastic and elastic collisions; and evaluate torque and angular momentum in rotating systems.

MLO 4

Evaluate the conditions for static equilibrium of rigid bodies and assess existing physical models for new applications.

MLO 5

Analyse and formulate solutions to real-life problems using learned theories and principles of mechanics.

Module contents

Measurement and units, vectors and vector multiplication

Motion in one and two dimensions, analysis of projectile motion

Forces, Newton's laws of motion, friction, 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, motion under a central force

Kepler's laws, planetary motions,
satellite motion, Coriolis theorem,
gravitational field

Assessment

60%

Examination

40%

Coursework

Examination
60%

Class test
30%

10%

■ Examination — 60% ■ Class test — 30% ■ Assignment — 10%

Formative assessment

Weekly discussion
and feedback

Summative assessment

COMPONENT	WEIGHTING
Examination	60%
Coursework	40%
Individual	40%
Class test	30%
Assignment	10%

Graduate attributes and skills

Programme learning objectives (PLO) addressed

1

PLO 1 (Core Disciplinary Knowledge)

2

PLO 2 (Critical Thinking and Comparative Analysis)

4

PLO 4 (Numerical and Analytical Competence)

Sustainability concept addressed

4

SDG 4 Quality Education

7

SDG 7 Affordable and Clean Energy

9

SDG 9 Industry, Innovation and Infrastructure

Digital skills/software used (not limited to)

- Word processing software (e.g. Microsoft Word)
- Presentation software (e.g. PowerPoint)
- Web browsers (e.g. Internet Explorer)
- Learning Management Systems (e.g. Canvas)
- Communication Software (e.g. Microsoft Teams)

Micro-credentialling option

No

Stackable towards GenBESTARI Undergraduate Degree Programme or other relevant Lifelong Learning Programmes

No

Document details

Office ODVCE

Document date 23 June 2026

Status New

Approval GBF (12/02/2026)