

# **Course: Physics 1**

## ***Table of contents***

### **Chapter 1: Introduction**

1.1 Vector operations: dot and vector product

1.2 Dimensional analysis, physical quantities and their units of measurement

### **Chapter 2: Mechanics of the material point**

2.1 Kinematics

- Position, velocity and acceleration vectors
- Study of some particular movements: rectilinear and in-plane movements

2.2 Dynamics

- Fundamental laws: Newton's law: Mass, force and weight

2.3 Work and energy

- Work and power

2.4 Gravitation

- Kepler's laws
- Gravitational fields and energy and value of “g”
- Planetary movements

### **Chapter 3: Optics**

3.1 Geometric optics

- General

3.2 Wave optics

- General
- Polarization
- Interferences
- Diffraction

### **Chapter 4: Acoustic waves**

4.1 Sound waves (generation, propagation and detection)

4.2 Ultrasonic waves

- Applications (hearing, ultrasound, etc.)

