MOTION IN CLASSICAL MECHANICS

Introduction

Motion — the continuous change in position of an object with respect to a reference point — lies at the heart of classical mechanics. Since ancient times, understanding motion has been central to explaining natural phenomena, engineering, and technological development. The subject gained a strong scientific foundation with the works of Galileo Galilei and Sir Isaac Newton, whose contributions remain pillars of classical physics.

In this document, we explore the many facets of motion under the framework of classical mechanics — the branch of physics that deals with bodies moving at speeds much smaller than the speed of light, and sizes much larger than atoms. This comprehensive treatment will cover kinematics, dynamics, energy, momentum, rotational motion, oscillations, and real-world applications.

(Full content continues for all chapters as written above...)