



INTERNATIONAL HELLENIC UNIVERSITY
SCHOOL of ENGINEERING
DEPARTMENT of MECHANICAL ENGINEERING

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**The Cross Section of the Balkan High-School Physics
Curricula****FINAL**

Dynamics

Measurement

Fundamental quantities and derived quantities

Conversion of units

Significant digits of numbers

Motion in One Dimension

Position, velocity, and acceleration

Motion diagrams

Motion in Two Dimensions

Position, displacement, velocity, and acceleration

Projectile Motion

The trajectory of a projectile as combination of horizontal motion with constant velocity and vertical motion with constant acceleration

A body projected horizontally

Height and range of a projectile

The Laws of Motion

The concept of force

Newton's first law

Newton's second law

Newton's third law

Forces of friction

Free-body diagram

Energy of a System

Work done by a constant force

Kinetic energy

Kinetic energy and the work–kinetic energy theorem

Potential energy of a system

Conservative and non-conservative forces

Relationship between conservative forces and potential energy

Mechanical energy of a system

Changes in mechanical energy for conservative and nonconservative forces

Mechanical energy of a block–spring system

Electromagnetism

Current and Resistance

Electric current

Resistance

Ohm's law

Electromotive force

Resistors in series and parallel

Equivalent resistance in simple circuits

Electric power