



Course Syllabus

Course Code	Course Title	ECTS Credits
PHYS-150	General Physics I	8
Prerequisites	Department	Semester
None	Engineering	Fall, Spring
Type of Course	Field	Language of Instruction
Required	Science	English
Level of Course	Lecturer(s)	Year of Study
1 st Cycle	Dr Marios Nestoros	1 st
Mode of Delivery	Work Placement	Corequisites
Face-to-face	N/A	MATH-190 or MATH-195

Course Objectives:

The main objectives of the course are to:

- Introduce students to the basic concepts of mechanics.
- Help students develop an understanding of the principles taught as well as analytical problem-solving ability.
- Consolidate the basic principles discussed in the theoretical section of the course with laboratory experiments and computer applets/simulations.

Learning Outcomes:

After completion of the course students are expected to be able to:

- Assign the correct units of measurement to physical quantities and convert from one unit of measurement to another.
- Perform addition, subtraction, dot and cross multiplication with vectors.
- Analyze the motion of a particle in one and two dimensions using the quantities of velocity, acceleration and displacement.
- Apply Newton's Laws of motion to solve problems.
- Apply the principles of conservation of energy, linear momentum and angular momentum to solve problems.
- Investigate experimentally the above laws and principles.

Course Content:
Lectures

- Scientific Method, Fundamental Units and Measurement, Vectors
- Motion in one and two dimensions (displacement, velocity, acceleration).
- Force and Motion, Friction, Drag force
- Work and Kinetic Energy Theorem, Potential Energy, Mechanical Energy, Conservation of Mechanical Energy.
- Motion of a System of particles, Center of Mass & Linear Momentum Conservation
- Moments & Rotational Motion

Experiments and Simulations:

Selection of Experiments and simulations from: free fall, projectile motion, Newton's Laws of Motion, statics and elasticity, conservation of mechanical energy, conservation of momentum

Learning Activities and Teaching Methods:

Lectures (3 hours/week); Experiments& Simulations (2 hours/week).

Assessment Methods:

Midterm Test, Homework, Lab Work, Final Examination.

Required Textbooks / Readings:

Title	Author(s)	Publisher	Year	ISBN
Fundamentals of Physics	Halliday, Resnick, Walker	Wiley	8th Edition	9780470044728

Recommended Textbooks / Readings:

Title	Author(s)	Publisher	Year	ISBN
Newtonian Physics http://www.lightandmatter.com	Ben Crowell			