



University of Nicosia, Cyprus

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

Objectives of the Course:

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:

- 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 Contents:

Lectures

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

6. 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/Reading:

Authors	Title	Publisher	Year	ISBN
Halliday, Resnick, Walker	Fundamentals of Physics	Wiley	8 th Edition	9780470 044728

Recommended Textbooks/Reading:

Authors	Title	Publisher	Year	ISBN
Ben Crowell	Newtonian Physics http://www.lightandmatter.co m/			