Global Learning Semesters
Course Syllabus
Course: PHYS-150 General Physics I
Department: Engineering
Host Institution: University of Nicosia, Nicosia, Cyprus

Course Summary		
Course Code	**Course Title**	**Recommended Credit Hours**
PHYS-150	General Physics I	4
Semester Offered	**Contact Hours**	**Prerequisites**
Please contact us	42-45	PHYS-190
Department	**Level of Course**	**Language of Instruction**
Engineering	Lower Division	English

Course Description

Introduction to the basic concepts and principles of Physics in the area of classical mechanics. A five hour course that includes 4 hours of lecture and one hour of laboratory.

Prerequisites

PHYS-190

Topic Areas

1. Measurement of length, time and mass. Units, conversion of units.
2. Motion in one dimension. Position, velocity, acceleration
3. Constant acceleration. Free-fall
4. Vectors: addition, subtraction, multiplication
5. Motion in a plane. Position, velocity, acceleration. Projectile motion, uniform circular motion, relative motion
6. Force and motion. Newton's laws. Friction
7. Work, kinetic energy, power. Work-energy theorem
8. Potential energy. Conservation of energy
9. Systems of particles. Center of mass, conservation of linear momentum
10. Collisions, impulse, collisions in one dimension (elastic and inelastic), collisions in two dimensions
11. Rotational motion. Torque, angular momentum
12. Equilibrium and elasticity
13. Oscillations. Simple harmonic motion, pendulums

Laboratory

The basic principles of PHYS-150 are implemented through a comprehensive set of experiments. The Physics laboratories are equipped with PASCO Scientific products and all experiments are developed by PASCO Scientific (the leading seller for equipment for physics labs). All experiments are given to students in the form of handouts as provided in the PASCO manuals.

No.	TITLE OF EXPERIMENT	DESCRIPTION
1	Projectile Motion**:**	Hands-on experiment
	Range of a ball launched at an angle, initial velocity	

2	Motion along a straight line**:**	Hands-on experiment
	Acceleration Down an incline	
3	Newton's Second Law**:**	Hands-on experiment
	Verification	
4	Newton's Second Law-Static Friction**:**	Demonstration
	Determination of the coefficient of static friction	
5	Newton's Second Law-Kinetic Friction**:**	Hands-on experiment
	Determination of the coefficient of kinetic friction	
6	Conservation of Energy**:**	Hands-on experiment
	Kinetic-potential energy, sliding friction and conservation of energy	
7	Conservation of Momentum in Two Dimensions:	Demonstration
	Momentum in collisions, simple harmonic motion	

Readings and Resources

Required Textbook

- D. Halliday, R. Resnick and J. Walker, Fundamentals of Physics, Fifth Edition, Wiley, 1997 (ISBN: 0-471-10558-9).

Recommended Reading

- Wolfson R., Pasachoff J., Physics with Modern Physics for Scientists and Engineers, Second Edition, Harber Collins, 1995 (ISBN: 0-06-501016-7).