Level One

General Physics (1)

Course Code	Course Num.	Course Name	Credit Hours	Lec	Lab	Tut	Prerequisites
PHY	101	General Physics (1)	3	3	0	1	

Objectives:

Students will develop an understanding of some of the fundamental laws of nature and their mathematical representation.

Syllabus:

Contents	Chapter	Durati
- Motion in one dimension: Displacement, velocity and acceleration, one dimensional motion with constant acceleration, freely falling objects.	2	2
- Vectors: Vector and scalar quantities, some properties of vectors, components of a vector and unit vectors	3	1.5
- The laws of motion: the concept of force, Newton's first law, Newton's second law, the force of gravity and weight, Newton's third law, some applications of Newton's laws, forces of friction.	5	2
- Work and kinetic energy: the scalar product of two vectors, work done by a constant force, kinetic energy and the work-kinetic energy theorem.	7	1.5
- Potential energy and conservation of energy: Potential energy, conservative and non conservative forces, conservative forces and potential energy, conservation of mechanical energy, work done by non-conservative forces.Power	8	2
- Electric field: properties of electric charges, insulators and conductors, Coulomb's law, electric field created by one charge and group of charges, electric field lines.	23	2
- Electric potential:potential difference and electric potential, potential difference in a uniform electric field, electric potential and potential energy due to point charges.	25	1
- Capacitance:definition of capacitance, calculating Capacitance for parallel plate capacitors, connection of capacitors, energy stored in a charged capacitor.	26	1.5
Direct Current:electromotive force electric current, resistance and resistivity, Ohm's law, connection of resistors, electric energy and power, Kirchhoff's rules.	27-28	2.5

References:

- Physics for Scientists and Engineers (with modern physics) –by Raymond A. Serway, and John W. Jewett – Brooks Cole – 6th Edition (July 21, 2003)
- Physics for scientists and engineers with modern physics Randall D. Knight, (December, 2003)