



## General Physics (2)

Course Code	Course Num.	Course Name	Credit Hours	Lec	Lab	Tut	Prerequisites
PHY	106	General Physics (2)	4	4	2	0	PHY 101

### *Objectives:*

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

### *Syllabus:*

- Sources of the Magnetic Field: the Biot-Savart's law, the magnetic force between two parallel conductors, ampere's law, the magnetic field of a solenoid, magnetic flux, Gauss's law in magnetism, displacement current and the generalized Ampere's law.
- Faraday's law: Faraday's law of induction, motional emf, Lenz's law, induced emfs and electric fields, generators and motors, Eddy currents.
- Inductance: self-inductance, RL circuits, energy in a magnetic field, mutual inductance, oscillation in an LC circuit, the RLC circuit.
- Image Formation: reflection, refraction, Dispersion and prisms, images formed by flat mirrors, images formed by spherical mirrors, Images formed by refraction, thin lenses, applications.
- Interference and Diffraction of Light Waves: conditions for interference, Young's double –slit experiment, intensity distribution of the double-slit interference pattern, introduction to diffraction patterns, phasor addition of waves, diffraction patterns from narrow slits.

### *References:*

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

