

PHY-102 Applied Physics

Credit Hours: 2-1

Pre-requisites: None

Course Objectives

- Physics aims to explain how things work from the smallest to the largest of scales.
- It takes in practice and theory, specialist pure research and applications in the surroundings of everyday life.
- The main objective of the course is to teach students how to effectively read scientific material, identify fundamental concepts, reason through scientific questions, and solve quantitative problems.

Course Contents

- Core concepts in Newtonian Mechanics: space, time, mass, force, momentum, torque, and angular momentum; the principles of mechanics
- Conservation Laws involving energy, momentum and angular momentum
- Heat transfer and thermometry, principles of Optics, linear propagation of light, magnification and optical lenses
- Magnetism, Electricity, Electromagnetic effect, laws of electromagnetic induction, principal of transformer, galvanometer, ammeter, voltmeter, condensers and dielectric properties

Course Outcome

- Graduates will have the understanding in the basic principles of physics and thinking skills necessary to construct an appropriate understanding of physical phenomena in an applied context.

List of Practicals

- Experiment
- Introduction to Lab
- Understanding Errors
- Mini-launcher (Expt 1,2,3)
- Mini-launcher (Expt 4,6)

- PAS car with Mass (Expt 1,2,3)
- PAScar with Mass (Expt 4,6)
- Gas Laws (Expt 1,2,3)
- Faraday's Law
- Ripple Tank
- Fly Wheel
- DC Electronics

Suggested Books

- Young, Hugh D., and Roger A. Freedman. *University Physics. 11th ed. with Mastering Physics. Reading, MA: Addison-Wesley, 2004.*
- John D. Cutnell, Kenneth W. Johnson, *Physics, Wiley 7th Edition*