

Course Code: BA113	Course Title: Physics	Classification: R	Coordinator's Name: Dr. Adel Elrfaay	Credit: 3
Pre-requisites: None	Co-requisites: None	Schedule: Lecture 2 hrs. Tutorial/Lab 2 hrs.		
Course Description: The course covers the basics of the electric field- Motion of charged particles in a uniform electric field- Electric potential- Calculation of the electric potential difference from the electric field- Capacitors and Dielectric- Currents and Ohm's Law- Resistors in series and parallel- Kirchhoff's rules-R.C circuit- Magnetic Force and Field- Sources of the magnetic field- Electromagnetic Induction- Mechanical Waves (Longitudinal wave- Transverse wave)- Physical properties of Sound Wave(Amplitude-Phase- Wavelength-period of a wave-Pitch-Frequency- Reflection-Refraction-and Diffraction of Sound Wave- Sound Propagation- Acoustic pressure, energy, and intensity - Interference of Light.				
Textbook: John D. Cutnell, Kenneth W. Johnson, David Young, Shane Stadler, <i>Introduction to Physics</i> , 10 th Edition, Wiley.				
References: - Fundamentals of College Physics – Peter J. Nolan. - Physics for Scientists and Engineers with Modern Physics- Serway				
Course Objective/Course Learning Outcome:		Contribution to Program Student Outcomes:		
1. Understand the essential background of electricity, magnetism, and light.		(SO1) Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.		
2. Understand the concepts of induction magnetic flux, and electric currents.		(SO3) Communicate effectively in a variety of professional contexts		
3. Realize sound concepts and understand its properties.				
4. Make several experiments to make application on electricity, magnetism and light.		(SO3) Communicate effectively in a variety of professional contexts		
5. Write technical reports and results.				

Course Outline:

- Circular Motion, Rotational Dynamics & Oscillatory motion;
- Temperature & thermometry; Kinetic theory of Gases, specific heat capacity and Latent heat, Heat Transfer;
- Static Electricity; Electric field & potential, Capacitance and dielectric; Electric current, resistance and DC circuits, resistors in series and parallel, Kirchhoff's rules, RC circuits.
- Magnetism: Force & torque; the Hall Effect, Generation of magnetic field, Faraday's law of electromagnetic induction and Lenz's law.