Course Title	**Applied Physics**		
Course Code	**GE-169**		
Credit Hours	3 (2,1)		
Category	General Education		
Prerequisite	None		
Co-Requisite	None		
Follow Up	None		
Course Introduction	The course introduces students with the basic concept of Physics and electronics. Students are also taught Physics laws and other associate topics to prepare them for the advanced level courses in this area. The focus of the course on electric force and its applications and related problems, conservation of charge, charge quantization, Electric fields due to point charge and lines of force and many other useful topics.		
Course Learning Outcomes (CLOs)	At the end of the course, the students will be able to:	**BT**	**PLO**
	CLO1: To understand the fundamental concepts of Physics.	C2 (Understand)	1,2
	CLO2: To understand about charges and their interactions.	C2 (Understand)	1,2
	CLO3: To develop strong concepts of numerical techniques related to vectors and electrostatics and magnetism.	C2 (Understand)	1,2
	CLO4: To develop the relation between electricity and magnetism.	C4 (Analyze)	1,2,3
Course Description	Electric force and its applications and related problems, conservation of charge, charge quantization, Electric fields due to point charge and lines of force. Ring of charge, Disk of charge, A point charge in an electric field, Dipole in a n electric field, The flux of vector field, The flux of electric field, Gauss' Law, Application of Gauss' Law, Spherically symmetric charge distribution, A charge isolated conductor, Electric potential energy, Electric potentials, Calculating the potential from the field and related problem Potential due to point and continuous charge distribution, Potential due to dipole, equipotential surfaces, Calculating the field from the potential, Electric current, Current density, Resistance, Resistivity and conductivity, Ohm's law and its applications, The Hall effect, The magnetic force on a current, The Biot- Savart law, Line of B, Two parallel conductors, Amperes' s Law, Solenoid, Toroids, Faraday's experiments, Faraday's Law of Induction, Lenz's law, Motional emf, Induced electric field, Induced electric fields, The basic equation of electromagnetism, Induced Magnetic field, The displacement current, Reflection and Refraction of light waves, Total internal reflection, Two source interference, Double Slit interference, related problems, Interference from thin films, Diffraction and the wave theory, related problems, Single-Slit Diffraction, related problems, Polarization of electromagnetic waves, Polarizing sheets, related problems.		
Text Book(s)	1. D. Halliday, R. Resnick, Kenneth S. Krane, Physics Vol. 2, 5th Ed., John Wiley, 2001, ISBN: 978-0471401940.		
Reference Material	1. Hugh D. Young, Roger A. Freedman, A. Lewis, Sears, University Physics, 11th Ed., Benjamin-Cummings Pub. Co., 2004, ISBN: 978-0805391794. 2. D. Halliday, R. Resnick, J. Walker, Fundamentals of Physics, 6th Ed., Wiley, 2010, ISBN: 978-0470469118. 3. Fundamentals of Physics (Extended), 10th edition, Resnick and Walker 4. Narciso Garcia, Arthur Damask, Steven Schwarz., "Physics for Computer Science Students", Springer Verlag, 1998.		