Course Code & Course Title	**BPY1101: BASIC ELECTRICITY AND OPTICS**		
Credit Hours	3 Hrs		
Pre-requisite	None		
Purpose	To understand electronics, magnetic and optical business information technologies and devices		
Objectives	• Describe the properties of materials in terms of conductivity • Describe the basic properties of magnets, optics and electricity and their uses • Solve basic problems of magnetism, optics and electricity • Describe the application of optical and electrical devices in information technology		
Content			
Week	**Topic**	**Content**	**Remarks**
Week 1	Introduction to Electrostatics	Concept of charge, , Coulomb's law, Electric field, Electric Potentials	Simple circuit experiment required.
Week2	Atomic Structure and Bonding	Bonding, crystals and crystallography, Energy Band Theory – Conductors, Insulators, semiconductors	3 Dimensional solids required for demonstration
Week3	Magnetism	Magnets, Magnetic Fields and Magnetic forces	
Week4	Electromagnetic induction	Faraday's law Inductor	A dynamo is required for demonstration.
Week5	DC current	Current electricity, resistance and capacitors	Solid resistors and compact capacitors for demonstration
Week6	CAT I	Revision	
Week7	Main electricity	Impendence	
Week8	Photoelectric effect	Work function	
Week9	Electronics	Diodes, rectifiers and transistors	A radio tuning system for demonstration
Week10	Optics	Light and its properties Lasers as source of light	
Week11	Reflection and Refraction	Thin lenses, Total internal reflection, optic fibres	Experiment using prisms and lenses
Week12	CAT II	Revision	
Week13	Revision		
Teaching Methodology		Lectures, Tutorials, Group discussions, Assignments, and Demonstration	
Instructional Materials/Equipment			
Assessment		**Examination** - 70%; CAT and Lab practical - 30%; **Total - 100%**	
Required Text Books		i) Kuhn K.F 2010, Basic physics: A self-teaching guide, Wiley, 9th Edition ii) Hewitt P.G 2001, Bonceptual physics, Addison Wiley, 9th edition. iii) Halliday and Resnick, 2009, Fundamentals of physics	
Text Books for further reading		i) Gussow Schaum, 2010, outline of basic electricity, McGnaw-Hill	
Other supportive materials		Journals, electronic information sources	