Course Title	Physics II				
Course Code	PHY110				
Course Type	Compulsory				
Level	Bachelor (1st Cycle)				
Year / Semester	1st Year / 2nd Semester				
Teacher's Name	TBA				
ECTS	6	Lectures / week	3 hours / 14 weeks	Laboratories / week	N/A
Course Purpose and Objectives	The objective of this course is to provide students with a contemporary and modern view of electromagnetism and optics and to allow them to understand the fundamental principles of these areas. The course follows an embedded laboratory approach, where students are required to utilize a variety of experimental tools during the implementation of lectures.				
Learning Outcomes	Upon successful completion of this course, students should be able to: • Recognize the physical laws on phenomena from electromagnetism, electromagnetic waves and circuits and solve a wide range of related problems. • Describe phenomena in which light exhibits wave-like properties. • Describe phenomena in which light exhibits particle-like properties. • Carry out a series of experiments in electrostatics, magnetism and electromagnetism				
Prerequisites	PHY100	Co-requisites	None		
Course Content	Electric forces and fields: Forces between charges. Coulomb's law. Insulators and Conductors. Conservation of charge. The Electric field lines in various systems. Electric Potential: Electric potential and potential energy. Potential difference, Equipotential surfaces. Capacitors, dielec¬trics. Direct-current circuits: Electric current. Ohm's law. Electric circuits and Kitchhoff's rules. The EMF and terminal potential of a battery. Magnetism:				

<table>
<tr><td></td><td>Magnetic fields. Force on a current carrying conductor carrying conductor in a magnetic field. Forces on moving chan¬ges. Magnetic fields produced by current carrying conductors. The earth's magnetic field. Magnetic materials.
Electromagnetic induction:
Magnetic flux Induced EMF, Faraday's law. Self and Mutual induction. The energy In a magnetic field.
Electromagnetic waves:
The electromagnetic wave's spectrum. Maxwell's equations (qualitative presentation).
Physical Optics:
Coherence. Interference of light in Young's double-slit experiment. Interference in thin films. The diffraction grating, diffraction by a single slit.
Recent developments and contemporary issues pertaining to the subject-matter of the course.</td></tr>
<tr><td>Teaching Methodology</td><td>Face- to- face</td></tr>
<tr><td>Bibliography</td><td>“Physics for Scientists and Engineers”, by P.A. Tipler and G. Mosca,
“Introductory College Physics”, by J.F. Mulligan
“Physics for Engineers and Scientists”, by H.C. Ohanian
“Principles of Physics”, by F.J. Bueche</td></tr>
<tr><td>Assessment</td><td><table><tr><td>Examinations</td><td>85%</td></tr><tr><td>Assignments/Lab</td><td>5%</td></tr><tr><td>Class Participation and Attendance</td><td>10%</td></tr><tr><td></td><td>100%</td></tr></table></td></tr>
<tr><td>Language</td><td>English</td></tr>
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