ENGINEERING PHYSICS (THEORY) BS100

Pre-requisite: none
Credit Hours 03
Contact Hours 48

RECOMMENDED BOOKS

- David Halliday, Robert Resnick, and Jearl Walker, "WIE Fundamentals of Physics," Ninth Edition

REFERENCE BOOKS

- Physics by Resnick, Halliday, Krane, Fifth edition.

OBJECTIVE OF COURSE

The objective of this course is to familiarize with fundamental principles physics like Measuring, International system of units, Straight Line motion, Displacement, Velocity and acceleration. Develop the ability to apply knowledge of Addition and multiplication of Vectors to Electrostatics and Electromagnetics, and Current–produced magnetic fields. Analyze Geometrical optics, Optical Interference, Coherence, Optical Diffraction and wave theory of Light, Atoms and their properties, X-Rays and Lasers for engineering problems.

S.NO	CLO/PLOS MAPPING	DOMAIN	PLO
01	**Recognize** and **execute** codes	P1, P4	01
02	**Execute codes** in the Processing programming environment.	P4	03
03	**Practicing** and **designing** Processing programs.	P3,P7	02
04	**State and analyze** programming environments	C1,C4	05

COURSE CONTENTS

Units and Measurements:

- International system of units, Straight Line motion, Displacement, Velocity and acceleration, Vector quantities, Addition and multiplication of Vectors.

Electrostatics

- Coulomb's law, charge densities, Electric field and Electric Field Lines, Gauss's Law and its applications,

Magnetism

- Magnetic field and force, Hall Effect, Current–produced magnetic fields, Biot servat law, Ampere Law

Induction

- Induction, magnetic flux and faraday law

Solid-state physics

- energy bands, conductors, semiconductors, insulators, p-n junction diode,

Geometrical optics:

- Optical Interference, Coherence, Optical Diffraction and wave theory of Light,

Atomic Structure

- Atoms and their properties, X-Rays and Lasers.

S. NO	CLO/PLOS MAPPING	DOMAIN	PLO
01	**Comprehend** the fundamental laws of physics relevant to the engineering sciences	C1	01
02	**Apply knowledge** of basic physical laws to solve various problems of applied nature.	C3	02
03	**Analyze** different physical problems using the laws of physics from different areas like solid state physics, optics and atomic structure of X rays and LASER.	C4	04