

PHYSICS

Semester-4 (Paper 1): Electricity, Magnetism and Electronics

Learning outcomes

On successful completion of this course, the students will be able to:

- Understand the Gauss law and its application to obtain electric field in different cases and formulate the relationship between electric displacement vector, electric polarization, Susceptibility, Permittivity and Dielectric constant.
- Distinguish between the magnetic effect of electric current and electromagnetic induction and apply the related laws in appropriate circumstances.
- Understand Biot and Savart's law and Ampere's circuital law to describe and explain the generation of magnetic fields by electrical currents.
- Develop an understanding on the unification of electric and magnetic fields and Maxwell's equations governing electromagnetic waves.
- Phenomenon of resonance in LCR AC-circuits, sharpness of resonance, Q- factor, Power factor and the comparative study of series and parallel resonant circuits.
- Describe the operation of p-n junction diodes, Zener diodes, light emitting diodes and Transistors.
- Understand the operation of basic logic gates and universal gates and their truth tables.