

# Unit -1: ELECTROSTATICS

## LEARNING OBJECTIVES

**In this unit, student is exposed to**

- Historical background of electricity and magnetism
- The role of electrostatic force in day – to-day life
- Coulomb’s law and superposition principle
- The concept of electric field
- Calculation of electric field for various charge configurations
- Electrostatic potential and electrostatic potential energy
- Electric dipole and dipole moment
- Electric field and electrostatic potential for a dipole
- Electric flux
- Gauss law and its various applications
- Electrostatic properties of conductors and dielectrics
- Polarisation
- Capacitors in series and parallel combinations
- Effect of a dielectric in a capacitor
- Distribution of charges in conductors, corona discharge
- Working of a Van de Graaff generator