

# E & M UNIT I - Objectives

By the time you finish this unit you should be able to:

1. Distinguish between the two kinds of particles that are responsible for electric interactions.
  - When two objects are electrically attracted to each other, this does NOT confirm that both objects have a NET charge on them.
  - When two objects repel each other, this DOES confirm that both objects have a net charge on them, of the same type.
2. Distinguish between conductors and insulators.
3. Explain charging by conduction, induction and polarization in terms of the movement of electrons.
4. Use Coulomb's Law to represent the relationship between electric force, charge and distance of separation. Given information about the quantity of charge on two bodies and the separation distance, determine the electrostatic force acting on the bodies.
5. Recognize the similarities and differences between Coulomb's Law and the Law of Universal Gravitation.
6. Recognize that an electric charge produces an electric field. Represent the electric field produced by point charges and charged plates.
7. Calculate the force exerted by a uniform electric field on a charged particle.
8. Draw parallels between the electric and gravitational fields.
9. Use the superposition principle to calculate the strength of the electric field produced by charge(s) at a given location.