

## 8.02 ESG Independent Study

### Unit 1: Electrostatics

Since you are now well acquainted with Newton's laws, 8.02 begins with a new kind of force, the electrostatic force between two charged objects. This interaction is described by Coulomb's law, which you will recognize as being similar to Newton's law of universal gravitation. Corresponding to this electric force is the electrostatic field, whose motivation may not be immediately obvious, but whose utility will become apparent in subsequent units.

**Objectives:** After completing this unit you should be able to:

1. Use Coulomb's law to find electrostatic forces between charged objects
2. Find the electric fields corresponding to simple charge distributions.

#### Suggested Procedure:

1. Read in UP11 chapter 21. Suggested problems include 6, 9, 28, 30, 48, 50b, 87, 96, 103.
2. Or read in Purcell chapter 1, sections 1-4, 7, 8 (sections 5 & 6 will be used later; you may of course include them now in your reading for continuity). Suggested problems include #s 1, 2, 3, 13, 16, 31, and 32.
3. Take a unit test.