## 11 EMF; Electric Power

## 11.1 Book Notes

- For a conductor to have a steady current, it must be part of a path that forms a closed loop (or a complete circuit).
- A battery is not a current source You might have thought that a battery or other source of emf always produces the same current, no what circuit it's used in.  $\mathcal{E} Ir = IR \implies I = \frac{\mathcal{E}}{R+r}$  says it isn't so. The greater the resistance R of the external circuit the less the current the source will produce.

## 11.2 Recitation

- Rate of energy conversion:  $P = I\mathcal{E}$
- Energy lost  $P = I^2 r_1$
- Total power supplied  $P = I\mathcal{E}_1 I^2r_1$