

Electric Motors



MODULE 2



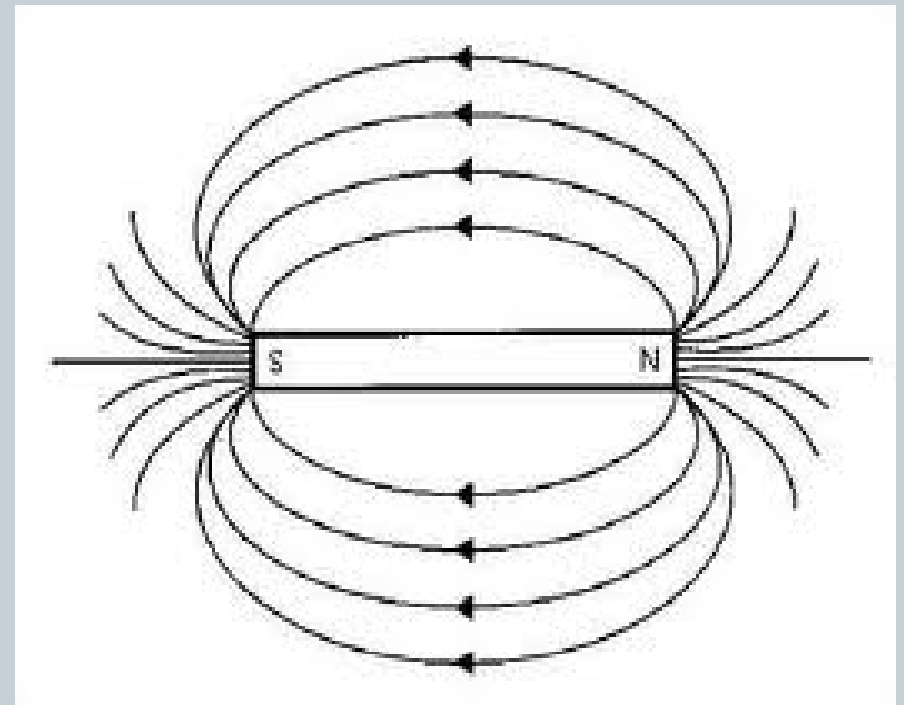
Electric Motors



- Electric Motors turn electrical energy into mechanical energy.
- Understanding the physics behind a motor depends on understanding the interaction of magnetic fields and electric fields.

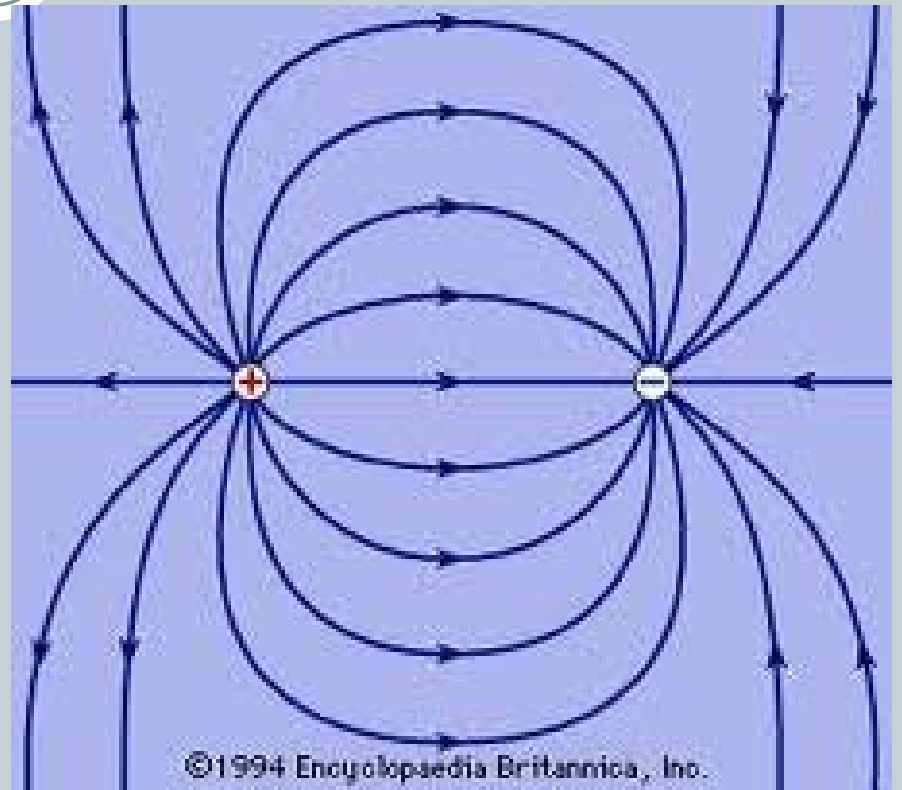
Magnetic Fields

- Magnets are objects with a special property based on their atomic structure.
- These objects pull on other magnetic objects.
- Magnets are surrounded by magnetic fields as shown in the diagram on the right.



Electric Fields

- Charged particles are surrounded by an electric field.
- These electric fields push on other charged particles.
- The picture shows the electric field between a proton and an electron.

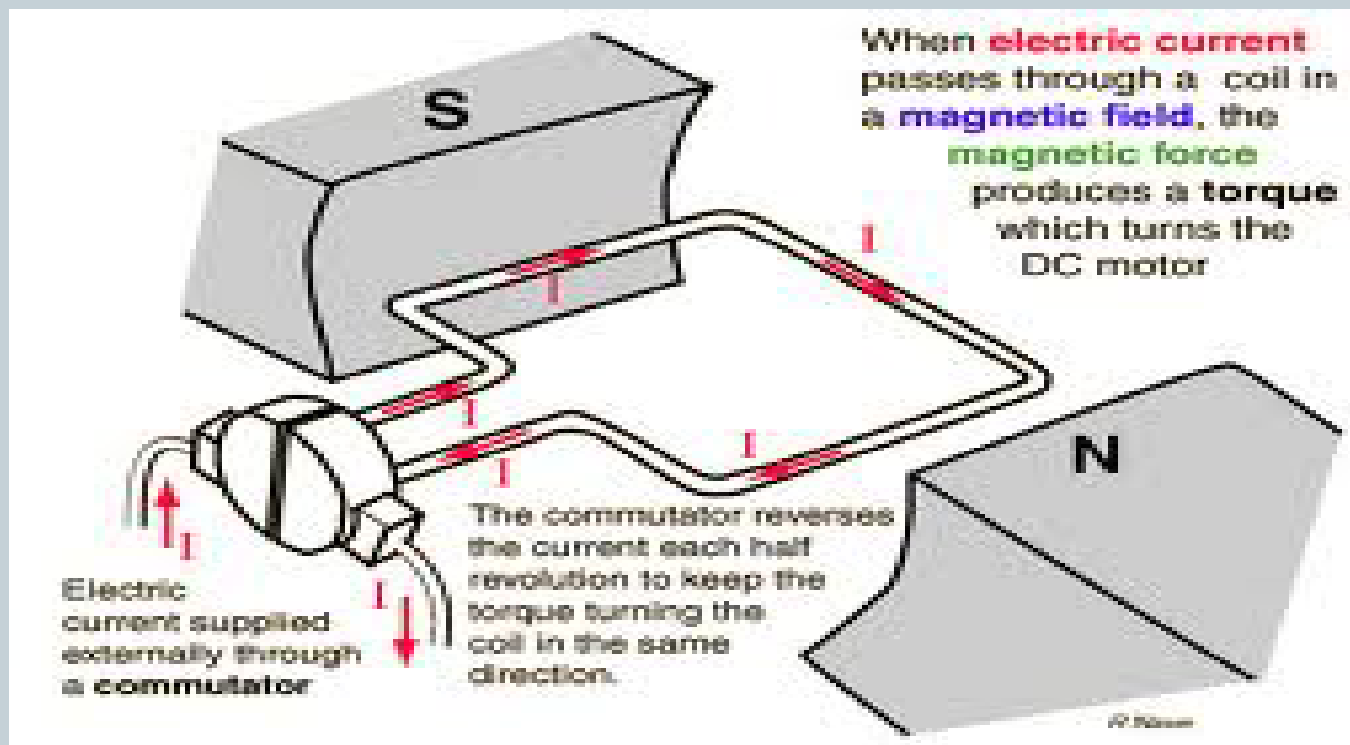


Electromagnetism



- When a wire conducting current is placed in a magnetic field, a force is induced on the conductor.
- If a compass is placed close to a wire carrying a current the needle is deflected.
- This is the basis of how a motor converts electrical energy into mechanical energy.
- A motor is a loop of wire in between two magnets. When current flows through the loop a force is induced and the loop spins.

Parts of a Motor



References



- <http://www.pc-control.co.uk/images/motor1.gif>
- <http://media-2.web.britannica.com/eb-media/96/196-004-767CD0FE.gif>
- <http://www.magnetic-shield.com/images/faq/flux-images.jpg>