

PHYS 1444 – Section 003

Lecture #15

Monday, Oct. 24,
2005

Dr. Jaehoon Yu

- Magnetic field
- Earth's magnetic field
- Magnetic field by electric current
- Magnetic force on electric current
- Magnetic force on a moving charge

Today's homework is homework #8, due noon, next Tuesday!!



Announcements

- Reading assignments
 - CH. 27 – 6
 - CH. 27 – 8
 - CH. 27 – 9



Magnetic Field

- Just like the electric field that surrounds electric charge, a magnetic field surrounds a magnet
- What does this mean?
 - Magnetic force is also a field force
 - The force one magnet exerts onto another can be viewed as the interaction between the magnet and the magnetic field produced by the other magnet
 - What kind of quantity is the magnetic field? Vector or Scalar? **Vector**
- So one can draw magnetic field lines, too.
 - The direction of the magnetic field is tangent to a line at any point
 - The direction of the field is the direction the north pole of a compass would point to
 - The number of lines per unit area is proportional to the strength of the magnetic field
 - Magnetic field lines continue inside the magnet
 - Since magnets always have both the poles, magnetic field lines form closed loops unlike electric field lines

