Video Lecture #1 – Chapter 21.1 - Introduction to Magnetic Poles and the Law of Poles

Thank You, Puja Patel, for these notes.

Video Lecture #2 – Chapter 21.1 - Introduction to Magnetic Field and the Magnetic Poles of the Earth

Video Lecture #3 – Chapter 21.3 - Introduction to the Magnetic Force and Teslas

\[ F_B = qvB \sin \theta \]
- \( q = \) charge
- \( v = \) velocity
- \( B = \) magnetic field
- \( \theta = \) angle between \( v \) & \( B \)

\[ B = \frac{N}{c \cdot m} = \frac{N}{\xi \cdot m} = \text{Tesla}, \text{T} \]

Video Lecture #4 – Chapter 21.3 - Introduction to the Right Hand Rule for the Direction of the Magnetic Force with Examples

The Right-hand rule
- Fingers \( \rightarrow \) point \( w \) direction of velocity
- Finger curl \( \rightarrow \) direction of \( B \) (90°)
- Thumb \( \rightarrow \) points in \( F_B \) on a \( \theta \) charge

\( \theta \) charge it is 180° from where your thumb is.

Video Lecture #5 – Chapter 21.3

Magnetic Force Right Hand Rule Examples using Cardinal Directions (North, South, East, West) (No Lecture Notes)
**Video Lecture #6 – Chapter 21.3 - Introduction to the Magnetic Force on a Current Carrying Wire**

\[ F_B = I L B \sin \theta \]
- \( I \): current
- \( L \): length of wire
- \( B \): magnetic field
- \( \theta \): angle between \( I \) & \( B \)

**Video Lecture #7 – Chapter 21.3 - Introduction to the Path of a Charged Particle in a Constant Magnetic Field**

- \( F_B \) is \\perp to direction of \( \vec{v} \)
- \( F_B \) in the in-direction

\[ F_{\text{fin}} = F_B = ma \]
- a charge moving \( \perp \) to a \( B \)-field will move in a circle
- speed = const.
- velocity \( \neq \) const.
Video Lecture #8 – Chapter 21.3 - Example - An Electron Moving in a Constant Magnetic Field: Part a) Finding Speed

Thank You, Kallie Bergers, for these notes.

Video Lecture #9 – Chapter 21.3 - Example - An Electron Moving in a Constant Magnetic Field: Part b) Finding the Period

Video Lecture #10 – Chapter 21.3 - Example - An Electron Moving in a Constant Magnetic Field: Part c) Finding Electric Potential Difference