

Date
20/03/2020

by. DR. VISHAL MISHRA

Faraday's laws of Electromagnetic Induction:

1) Whenever the magnetic flux linked with a closed circuit changes, an induced e.m.f. is set up in the circuit whose magnitude @ any instant is proportional to the rate of change of magnetic flux linked with the circuit.

4,

ϕ = magnetic flux linked with the circuit @ any instant - 't'

e = induced e.m.f.,
then -

$$e \propto \frac{d\phi}{dt} \quad \text{--- (1)}$$

2:→ The direction of induced e.m.f. is such that it opposes the change in flux that produces it. This law is known as Lenz's Law

because, although the direction of induced e.m.f. was determined by Faraday, but it was expressed in a law by Lenz.

Mathematically,
It is expressed as—

$$e = - \frac{d\phi}{dt} \quad \text{--- (2)}$$

Where;

e = e.m.f. induced in the circuit
(in volt)

ϕ = instantaneous flux linked with the circuit
(in weber)