General Aim
Determination of magnetic field of a circular current loop along its axis.

Method
Inducing of magnetic field by electric current

Learning Objectives (ILOs)
- Enumerates the factors affecting the magnetic field due to circular coil carrying current.
- Set up an experiment to study the magnetic field produced by current passing through a circular coil along its axis.

Theoretical Background/Context
A current passing through wire produces a magnetic field in the region around the conductor that can be calculated using Biot-Savart’s law.

When a circular coil of radius \( r \), carrying a current \( I \). At a point \( P \) along the axis of the coil a distance \( z \) from its center, the field is given by:

\[
B = n\mu_0 l \frac{R^2}{(R^2 - Z^2)^{3/2}}
\]

Principle of Work
Studying the variation of magnetic field produced by a circular turn carrying current \( I \), at different points along the axis of the coil.