Experiment : 6

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Course : B.Sc. Hons. Electronics
Semester : 5th

Experiment : 6

Aim : Plots of Magnetic Flux Density due to current carrying wire

Apparatus Required : A desktop with Scilab installed in it.

Theory :

The magnetic flux density is similar to electric flux density D. As D = ε0E in free space, the magnetic flux density B is related to magnetic field intensity H according to B=μ0H. Then ,B=u0.I/2πr for current carrying wire with current

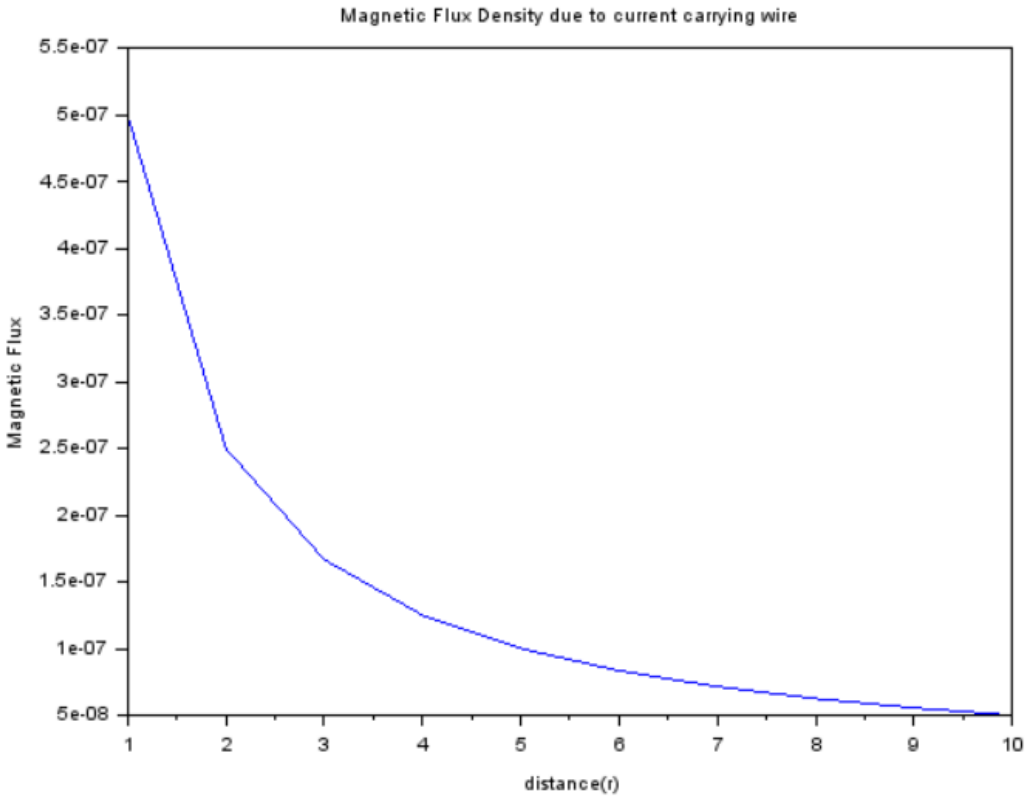
$$I.u_0 = 4\pi \times 10^{-7} \text{ H/m}$$

Code :

Expt-6-Mangnetic-Fluxl-Vishal-Anand.sce

```
clc;
u=4*%pi*10^-7;
I=2.5;
r=1:10;
B=(u*I)*(2*%pi*r)^-1;
plot(r,B);
title("Magnetic Flux Density due to current carrying wire");
xlabel("distance(r)");
ylabel("Magnetic Flux");
```

Output :



Result : Plot of Magnetic Flux Density due to current carrying wire is obtained graphically using scilab software and result is verified. At r = 2 m, B = 2.5 x 10-7 H/m r = 4 m, B = 1.3 x 10-7 H/m r = 8 m, B = 0.7 x 10-7 H/m

Discussion : magnetic flux density due to current carrying wire should be studied beforehand