Physics 112 Laboratory Report
Electromagnetic Induction

Name _____ Date_____

Lab Partner _____

Basic tests of Faraday's Law
Current dependence at fixed frequency

Operating frequency _____

V_s (volts)	V_R (volts)	V_s/V_R

Is V_s proportional to V_R?

Phase shift between $V_s(t)$ and $V_R(t)$ _____

Frequency dependence

f (Hz)	V_s (volts)	V_R (volts)	V_s (calc.) (volts)

Does V_s calculated from Eq. 8 agree with the measured V_s?

Angular dependence

Operating frequency _____

θ	cos θ	V_s

Attach a plot of V_s vs cos θ, demonstrating linearity.

Transformers
Mutual inductance

core	f (Hz)	V_s (volts)	V_R (volts)	dI_p/dt (amp/s)	M (Henry)
empty					
empty					
empty					
empty					
bar					
bar					
bar					
bar					
wires					
wires					
wires					
wires					

What is the effect of magnetic material on M?

Explain the different frequency dependence of M for the empty transformer, solid bar and wire bundle.

Ideal transformer

Operating frequency _____

core	V_s (volts)	V_p (volts)	V_s/V_p
empty			
bar			
wires			

Which core makes the transformer most nearly ideal? Explain.