

MEE ELECTRICAL MACHINES – Experiment #1

LABORATORY CONTENT: Understanding AC characteristics on circuitry

EQUIPMENT REQUIRED:

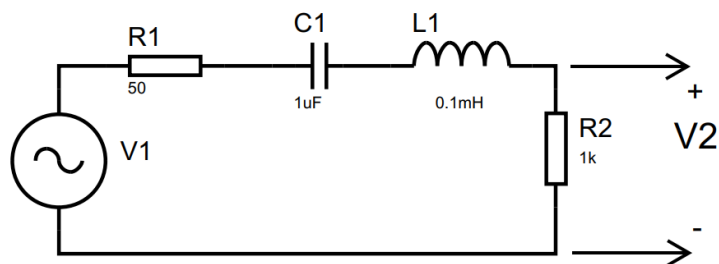
Qty	Description
1	Signal generator
1	Oscilloscope
1	Breadboard
1	1 kΩ resistor
1	1 μF capacitor
1	0.1 mH inductor
-	Wiring equipments (jumper cables, crocodiles, etc.)

PRELIMINARY QUESTIONS:

- 1) Analyze the circuit and find the equation for V_2 in terms of other components.
- 2) Using a simulator, apply the circuit and print the output signal V_2 and input voltage $V_1 = 5\sin(2\pi ft)$ where f is 50, 500 and 5000 Hz (three different frequency values).

EXERCISE STEPS:

- 1) Apply the circuit below (R1 is the internal resistance of signal generator, so you do not apply any extra 50 ohm resistor).
- 2) Measure the requested values of V_2 output voltage signal.



Frequency (Hz)	V_2 peak voltage	Is V_2 leading or lagging?	Lead/lag angle
50			
500			
5000			

POSTLIMINARY QUESTIONS:

- 1) ?????