

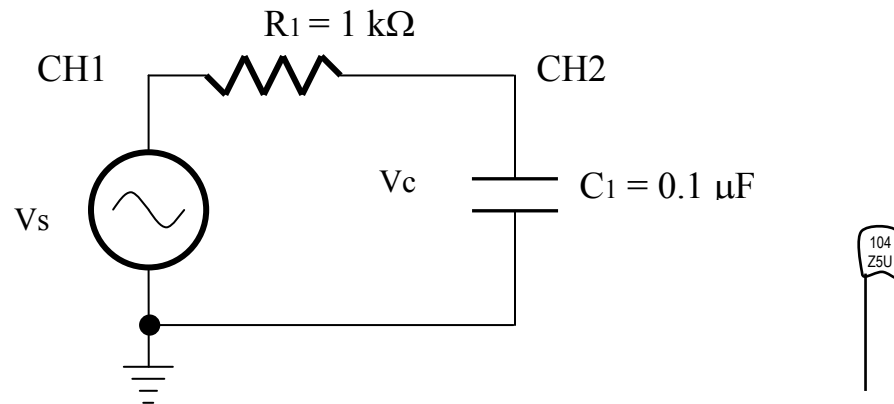
MUST 382 / EELE 491

Spring 2014

Lab experience #3

Procedure

P1. Use the function generator and the oscilloscope to observe simultaneously the source voltage (CH1) and the voltage across the capacitor (CH2).



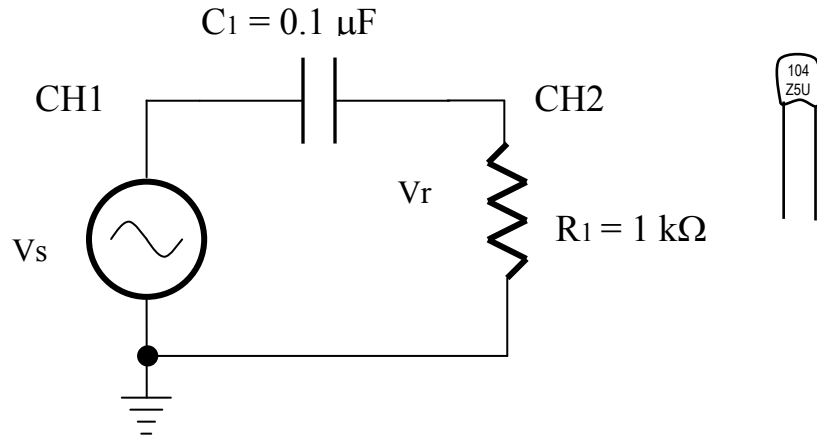
Using a sine wave from the function generator with peak-to-peak amplitude of 2 volts, fill out the following table.

<i>Frequency</i>	<i>CH1 Voltage Vs (p to p)</i>	<i>CH2 Capacitor Voltage (p to p)</i>	<i>Gain (Vc / Vs)</i>
50 Hz	2 V		
100 Hz	2 V		
200 Hz	2 V		
500 Hz	2 V		
1 kHz	2 V		
2 kHz	2 V		
5 kHz	2 V		
10 kHz	2 V		
20 kHz	2 V		

How do you interpret the behavior of the circuit as a function of frequency?

Name: _____

P2. Modify the circuit to interchange the position of the resistor and the capacitor. Use the function generator and the oscilloscope to observe simultaneously the source voltage (CH1) and the voltage across the resistor (CH2).



Again using a sine wave from the function generator with peak-to-peak amplitude of 2 volts, fill out the following table.

Frequency	CH1 Voltage V_s (p to p)	CH2 Resistor Voltage (p to p)	Gain ($ V_r / V_s $)
50 Hz	2 V		
100 Hz	2 V		
200 Hz	2 V		
500 Hz	2 V		
1 kHz	2 V		
2 kHz	2 V		
5 kHz	2 V		
10 kHz	2 V		
20 kHz	2 V		

How do you interpret the behavior of the circuit as a function of frequency?

P3. Replace the $1 \text{ k}\Omega$ resistor with a larger resistor, like $100 \text{ k}\Omega$, and make a few measurements to observe the voltage across the resistor as a function of frequency. What effect does the larger resistor have on the circuit frequency response?