

P5.W – R.C. Circuits

1. Describe a typical capacitor. What is capacitance a measure of, physically? Describe a typical R.C. circuit. Explain how voltage measured across a capacitor changes in time, both when the capacitor is charging and discharging. What are the equations that describe this?

2. What does a low pass filter do? How does it change/not change the input signal? What is the difference between a low pass and high pass filter? Explain how to determine the cut off frequency of a low pass filter based on the amplitude of the output signal. (Hint: $f_c = \frac{1}{\tau}$ and $A_{out} = \frac{A_{in}}{\sqrt{1+(2\pi f\tau)^2}}$.)