

ECE 351 - Lab 10 Prelab

Khoi Nguyen
<https://github.com/3khoin>

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$$H(s) = \frac{\frac{1}{RC}s}{s^2 + \frac{1}{RC}s + \frac{1}{LC}}$$

$$H(j\omega) = \frac{j\omega \frac{1}{RC}}{(j\omega)^2 + j\omega \frac{1}{RC} + \frac{1}{LC}} = \frac{j \frac{\omega}{RC}}{\frac{1}{LC} - \omega^2 + j \frac{\omega}{RC}}$$

$$|H(j\omega)| = \frac{\frac{\omega}{RC}}{\sqrt{(\frac{1}{LC} - \omega^2)^2 + (\frac{\omega}{RC})^2}}$$

$$\angle H(j\omega) = \tan^{-1}\left(\frac{1}{\frac{\omega}{RC}}\right) - \tan^{-1}\left(\frac{\frac{1}{LC} - \omega^2}{\frac{\omega}{RC}}\right)$$