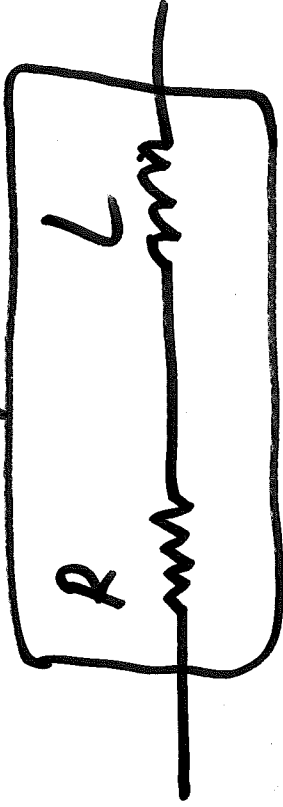


ECE 420 Impedance



$R - \Omega$

$L - H$

$mH = 10^{-3} H$

$\mu H = 10^{-6} H$

$$Z = R + j\omega L$$

If $R = 2 \Omega$ $f = 60 \text{ Hz}$

$L = 0.1 H$

Then $Z = R + j\omega L$

$$= 2 + j2\pi \cdot 60 \times 0.1$$

$$= 2 + j12\pi \Omega$$

$$\approx 2 + j37.699 \Omega$$

$$\omega = 2\pi f$$

The unit for impedance is Ω

For a capacitor $[C-F]$



$C = 0.1 \mu F$

$$Z = \frac{1}{j\omega C} = \frac{1}{j2\pi 60 \cdot 0.1 \times 10^{-6}}$$

$$= -j \frac{1 \times 10^6}{12\pi} \Omega$$

$$\approx -j26525.8 \Omega$$