E157 Lecture 21 Day Plan

Any questions before quiz

Quiz + Team Quiz + Talk through solution

Noise voltage variance on capacitor in RC low-pass filter – kT/C

- Xfer: $\frac{v_o}{v_i} = \frac{1}{(RCs+1)}$
- $Sv^2 = 4kTRdF$, in series w/ resistor
- $v_o^2 = 4kTR \int_{0}^{\infty} \frac{1}{RCs+1} df$
- Integral is $\frac{1}{4RC}$ (generally $1/\tau$)
- $v_o^2 = \frac{4kTR}{4RC} = \frac{kT}{C}$