# University of Pennsylvania
# Department of Electrical and System Engineering
# Circuit-Level Modeling, Design, and Optimization for Digital Systems

ESE3700, Spring 2025 | Crosstalk | Wednesday, April 23
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**In Detkin Lab:** Wednesday, April 23, 1:45PM
**NOTE:** For help capturing data and screenshots from the oscilloscope see:
`https://www.youtube.com/watch?v=YoXMoZSuXpU`

- You will work in teams of two. Show TAs your results before leaving the lab.

1. **Crosstalk** Observe and measure crosstalk. With the function generator drive one wire and observe the impact on another wire. How large is the voltage swing on the observed wire? You may need to adjust the V/div to see the voltage swing.
   - Use PCB trace with 4 different trace wire lengths corresponding to wavelength ratios–full wavelength, 3/4 wavelength, 1/2 wavelength and 1/4 wavelength. .For each of the 3 PCB trace wire lengths ($3/4\lambda$ , $1/2\lambda$ , $1/4\lambda$), drive wire A and measure:



   - ∗ B with B and C undriven/floating
   - ∗ C with B and C undriven/floating
   - ∗ B with B grounded
   - ∗ C undriven/floating with B grounded