E157 Lecture 7 Day Plan

Any questions before quiz

Quiz + Team Quiz + Talk through solution

Design a L-match checking against
https://www.analog.com/en/design-center/interactive-design-tools/rf-impedance-matching-calculator.html

- 5Grad/s=795MHz, Rl=10 ohm
- Qdesired = sqrt(50/10-1)=2
- Lseries = 4nH, Cshunt = 8pF OR Lshunt=5nH, Cseries=10pF

Lab practice discussion – designing while using a live Smith Chart,

- start w/ 0 Ohm in all positions you intend to populate so you can see load
- Pick next component after each soldering job, accounting for existing parasitics.
- Watch where you land on the Smith Chart after each solder job.
- Really helpful for matching networks, harder for filters where everything needs to be right.

Parasitics discussion –

- Pads have parasitic C to ground
- Amplifiers have shunt C b/c of transistors,
- Vias have series L b/c they close current loops