E157 Lecture 10 Day Plan

Any questions before quiz

Quiz + Team Quiz + Talk through solution

S-parameters of filters – insertion loss, return loss, Smith Charts

Passivity and Reciprocity as matrix properties –

• Reciprocal – Sij=Sji
• Symmetric – reciprocal and all Sii=Sjj
• Passive & Lossless – unitary: $S^T S^* = I$,
• If loss: $|S11|^2 + |S21|^2 \leq 1$,

Loaded reflection coefficient -- Gamma_in = S11 + S21*S12*Gamma_L/(1-Gamma_L*S22)

Plot Smith Charts for some common S-parameters – open, short

Calculate Z parameters for quiz problems

Lab 3 time

Check-in, office hours