

E157 Lecture 13 Day Plan

Any questions before quiz

Quiz + Team Quiz + Talk through solution

Review – guided recall of topics and questions, clarify topics.

- Transmission lines
 - Wave equations, differential models of transmission lines
 - Terminated transmission lines with square pulses
 - Terminated transmission lines with sine waves → VSWR
 - Delayed terminations → Impedance transformation and generalized Gamma
- Smith Charts
 - Coordinates and basic use. Plotting a load on the Smith Chart
 - Effect of R, L, C, tline on the location of a load on a Smith Chart
- Matching networks
 - Behavior on Smith Chart
 - Quality factor definition and measurement,
 - Series-to-parallel transformations
 - Design one
- S-parameters
 - Basic definitions
 - Measurement → VNA guts, calibration
 - Power flow → Types of power gain, power is \sim S-params squared, how much power?

Optionally: Negative resistances are outside the unit circle

Check-in, office hours