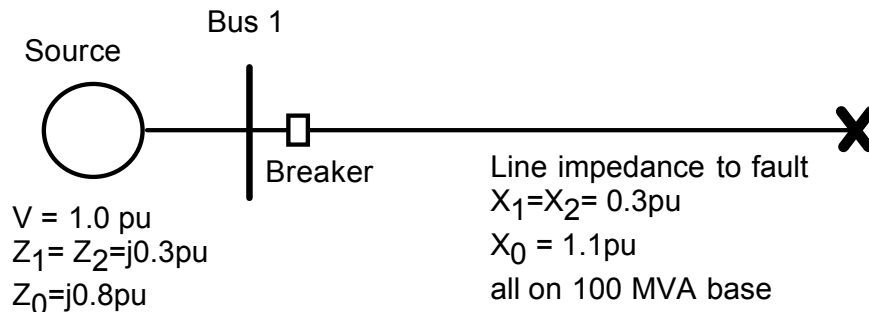


ECE 523: Homework #3

Due Session 16 (Sept. 30 on campus, Oct. 14 for Engineering Outreach)

1. Calculate the per unit currents and per unit voltages (ABC and symmetrical components) at the indicated fault point and at Bus 1 for 3 phase, SLG, LL and DLG faults, with $R_f = 0$. Assume everything is on a consistent per unit base (so you don't need to perform change of base calculations). Repeat with $R_f = 0.25$ pu.



2. Do the following for the circuit below:

- a. Calculate positive, negative and zero sequence equivalent circuits based on a fault 50% of the way down line 2 (the lower of the two lines).
- b. Calculate the voltages and currents at RelayR1 and RelayR2, for 3 phase, SLG, LL, and DLG faults with $R_f = 0$.
- c. Repeat the part (b) for a SLG fault with $R_f = 0.75$ pu.

