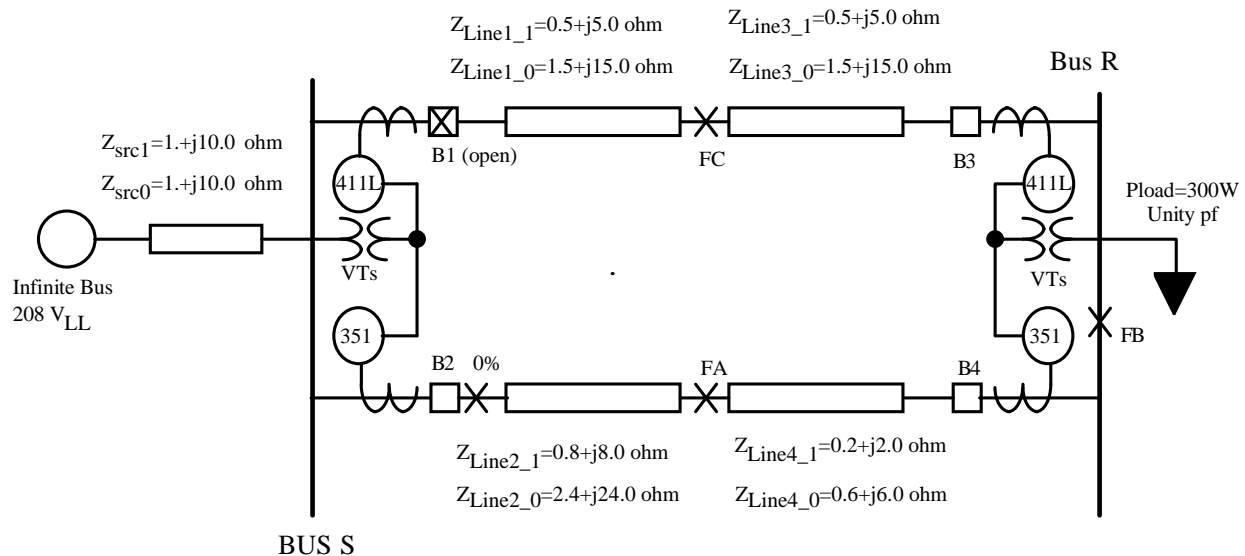


## ECE 525: Lab 1

- Reports Due Nov 6

The model power system can be configured as shown below, with a single source supplying two parallel lines. Each line segment has a series impedance of  $1 + j 10 \Omega$ , divided more or less equally between 10 taps. The source impedance can also be varied with taps and is set at its maximum.

- The CT's have a CTR of 2:1, but we set 200:1 in the relays to the currents displayed in the event record file would be more realistic
- The voltage transformers on the lower line have a VTR of 2:1, but set it at 200:1 in the relays.
- Assume no mutual coupling between the parallel lines.



### Lab 1 Objectives:

1. Learn to use the model power system to create faults (3 phase, LL, SLG, DLG) at points FA, FB, and FC
2. Set SEL 351 relay at Bus S to respond in level 1 to fault at FA up to 80% of the line length.
3. Also set SEL 351 to respond with a time delay for faults at FB or FC (if FC is less than 50% of the way down the line). You will vary line length on the lines to test these
4. Learn to download event files from relay and analyze them.

### Before the Lab

Calculate load current and potential fault currents to test the relay settings