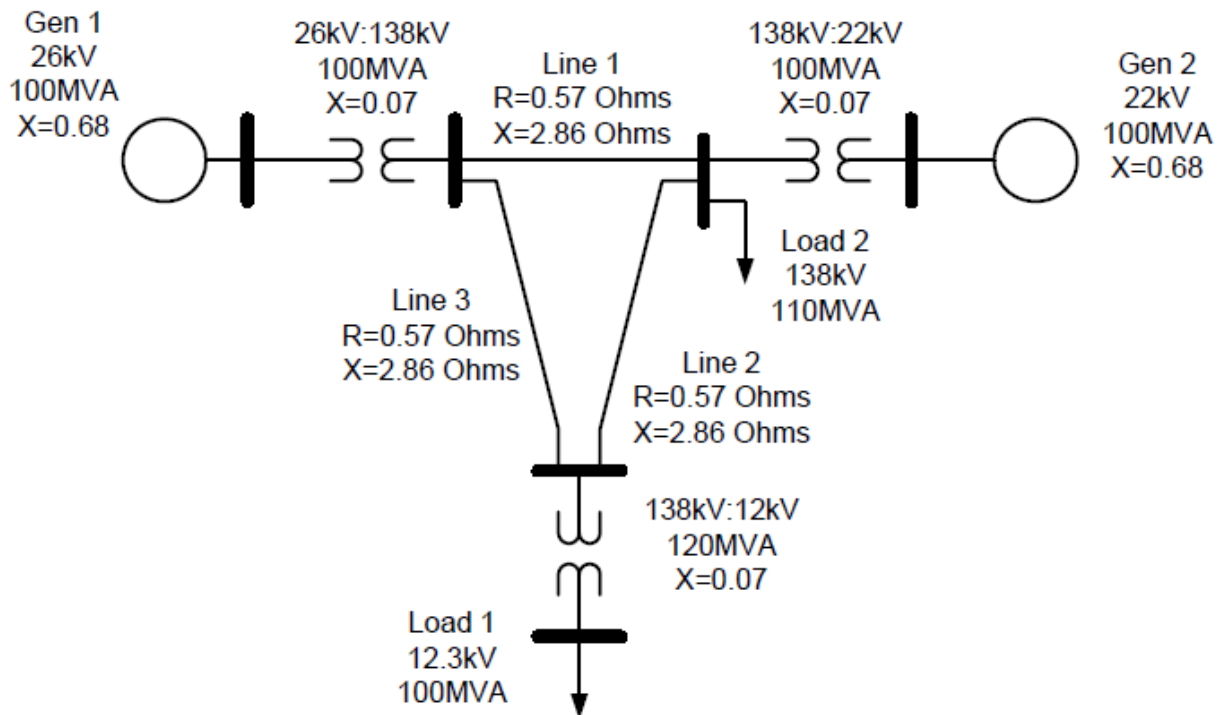


ECE 420
 Homework #4
 Three Phase Per Unit Normalization

- (2 points) Problem 2.9a on page 146-147 of the textbook. Do your CALCULATIONS in per unit. Express your answer in per unit on the transformer's ratings as your base.
- (4 points) Problem 2.24ab on page 150-151 of the textbook. Do the calculations in per unit.
- (4 points) The following one-line diagram describes a small power system.



Determine, draw, and label an appropriate per unit equivalent circuit for this small power system. For each impedance, calculate its value in per unit on the base that you select and label this per unit value on your circuit diagram. For the generators, calculate their Thevenin impedance in per unit and label it on your circuit diagram. For each load, calculate the apparent power and voltage in per unit on a consistent base; then draw a box at the appropriate place in your circuit diagram and label the box with that apparent power and voltage in per unit.