# EELE 354: Electric Power Applications
## Homework 1: Electrical Fundamentals
### Assigned: Monday, 10/13/2013
### Due: Wednesday, 10/23/2013

Read through Chapter 7 of your textbook, Industrial Electricity, 8th Edition by Brumbach. At the end of the chapter are review questions. **Note: Your book generally does not consider phase, only magnitude. Thus, in the author's description, when he writes current, I, for example, he really means current magnitude, |I|. The same is true for impedance, Z, voltage, E, power, P, etc.**

• Answer the multiple choice questions: 1-4, 7-12, 14, 19-22.

• Solve problems 2, 4, 5, 11-14, 18, and 19.

• For problems 13 and 19, the resistance of the coil (13) and that of the capacitor (19) are due to "non-idealities" in the devices. For these problems, note if the resistance has a significant effect on the total impedance of the device.

• For the inductor of problems 13 and 14, if a 2 k resistor is placed in series with the inductor, what is the impedance (magnitude) of the circuit and the current (magnitude) flowing through it? What is the power factor of the circuit? Assume a 120 V, 60 Hz supply.

• For the capacitor of problem 19, what is the total circuit impedance (magnitude) if a 80 resistor is placed in series with it? What is the current (magnitude) if a 240 V, 60 Hz supply is connected to the circuit? What is the power factor of the circuit?