ECE320 Homework Preview

Circuits review using LCR circuits and concept of resonance.

1. Read and skim the lectures on first order and second order circuits at the MIT Online CoursWare Circuits and Electronics course.

2. Download TopSpice and run the LC tank and MOSFET IV examples.

3. Skim the Rizzoni textbook and note which chapters can be studied without needing circuit theory.

4. Review chp. 5 and 6 in the Rizzoni textbook for second order circuits and resonance.

To turn in:

1. Give a mathematically scientific explanation of resonance in electrical circuits.

2. From the Rizzoni 5th ed. textbook, work out the following problems:

6:50 - Find the transfer function both for R = 8 ohms and R = 80 ohms. Comment on the difference in the transfer function for the two values of R.

6.56 - You can use a Norton transformation.

3. Solve for the transfer function for the LC tank example circuit in TopSpice using R = 10K and R = 100 ohms. Comment on the differences.