ECE241
Midterm Study Guide

- This is a 60 minute test during the first part of the class on Feb. 15. Test will start at 2:00pm. We will go over solutions of the test in the second part of the class.
- The midterm is a multiple choice exam
- You are required to bring a Scantron Form No. 882-E to the exam, where you will record your answers. Use of No. 2 pencil is also recommended. These are available from the PSU bookstore. You may want to bring an eraser as well.
- Calculators OK
- Closed book/closed notes except for a one page 8.5” x 11” formula sheet (writing on front and back is OK). This sheet should contain formulas only, no worked solutions.
- No spare (scratch) paper.

Topics covered are those covered in class from Svoboda and Dorf Chapters 1 to Chapter 5. The list of topics is given as Group 1 in the ECE241 syllabus.

Main skills you should have:

1) Understand resistors, conductances, Ohm’s law
2) Be able to determine power in a component (resistor or source) and whether it is absorbed or delivered
3) Be able to apply KVL and KCL in the analysis of circuits containing resistors and sources (both independent and dependent voltage and current sources)
4) Be able to find the equivalent resistance of resistors connected in series and/or parallel.
5) Be able to apply the resistor voltage and current divider rules in circuit analysis
6) Be able to perform nodal analysis of circuits containing resistors and sources (both independent and dependent voltage and current sources)
7) Be able to perform mesh analysis of circuits containing resistors and sources (both independent and dependent voltage and current sources)
8) Be able to source transformation in the analysis of circuits
9) Be able to find the Thévenin representation of a circuit
10) Be able to find the Norton representation of a circuit
11) Be able to apply the maximum power transfer theorem
12) Be able to use superposition in the analysis of circuits