

## ECE241

### Final Exam Study Guide

- Please check the syllabus (or the university exam schedule) for the date and time of the final exam.
- **The final exam is a multiple-choice exam.**
- **The exam will be comprehensive, i.e. it will cover any material from the ECE241 class.**
- **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 either one of the following (but not both):
  - i) 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.
  - ii) "Circuit Analysis" pamphlet:  
<https://www.amazon.com/Circuit-Analysis-Quickstudy-Inc-BarCharts/dp/1572225211/>

Please refer to the midterm study guide to see the topics covered there.

Topics covered after the midterm exam include the following:

- 1) DC switched circuit analysis. Be able to determine the transient response of a dc circuit. This effectively requires the determination of just three quantities: i) steady state initial condition, ii) steady state final condition, iii) time constant. These are then used in the general expression for the state response. The state is the inductor current, for a circuit featuring an inductor, or capacitor voltage, for a circuit featuring a capacitor. In the ECE241 class we only deal with first order circuits, i.e. circuits that either have a single inductor or a single capacitor.
- 2) AC steady state circuit analysis. Be able to determine the steady state response of a circuit which is driven by one or more AC voltage and/or current sources.
- 3) AC power: effective (RMS) values, average power, apparent power, power factor. Be aware of the definition of each of these and how they are calculated.