
EE566 Solid State Devices

Spring 2004

Dept of Electrical Engineering

University of Notre Dame

Instructor: Debdeep Jena (djena@nd.edu, x8835)

Course Philosophy

Solid State Devices have revolutionized modern communication; you encounter them today in every walk of life. Every electronic and optical device in operation today is based on some *universal* underlying concepts. This is a class on those concepts. This fact will be reflected in the lectures, assignments, and exams.

Understanding of concepts comes *only* when you apply them to solve problems *on your own*. Hence, solving assignment problems are extremely important to ensure that you learn the material. Most of the problems I will assign will require clear and critical thinking, which is impossible if delayed to the last minute. The most important piece of advice I can give you is to *read* the question carefully, and do *exactly* what it asks. Since you are graduate students now, you are supposed to learn the economy of language to write papers and reports. Give yourself time to write up the solutions *neatly*, and make meaningful plots and sketches. The following are cardinal sins in my course, and will be *heavily* penalized (even if your solution is correct)

- 1) Wrong (or missing) units
- 2) Plots without the axes labels
- 3) Unphysical answers (e.g. negative Kelvin temperature)
- 4) Turning in scratch papers, printouts of codes, or doing things that are not asked
- 5) Copying your friend's solution (both will be penalized)

I put in a lot of thought and care into preparing the assignments and exams, so I expect the same of you. There will be two mid-term exams and a final.

Be on time to the class, and make sure you attend all the classes¹. Being late to class disturbs me and the other students, and most of all, you suffer. Try to be in the class 5 minutes before it starts.

You will use simulation software (such as Dr. Snider's 1D Poisson), MATLAB or Mathematica in some assignment problems. Remember, that your work is only *half* done with a successful simulation result – the other half is the presentation - plotting things neatly, labeling axes with correct units, etc. Doing these will help you in your own research and in your career.

Relax and enjoy the course. Read the textbook as we go along. It is a fun course, and I *guarantee* you that you will learn a lot if you put in the effort. It will pay off immediately, since you will be using the concepts in your research right away, no matter what you are working on. I hope you enjoy it as much as I do teaching it!

¹ "Eighty percent of success is showing up" – Woody Allen