COLLEGE OF CHEMISTRY COURSE GUIDE (../INDEX.HTML)

PHYS 7B - PHYSICS FOR SCIENTISTS AND ENGINEERS (4 UNITS)

COURSE OVERVIEW

SUMMARY

Physics 7B is the second of the two physics classes required for chemistry and chemical engineering majors. This class covers a lot of material and focuses on three major physics concepts: thermodynamics, electricity, and magnetism. There are two, two-hour discussions each week and a total of five labs in the course that need to be completed. Homework is done on MasteringPhysics.

PREREQUISITES

Physics 7A (phys7a.html), Math 1A (math1a.html), Math 1B (math1b.html), and Math 53 (math53.html) (can be taken concurrently)

TOPICS COVERED

- Thermodynamics
  - Thermal Expansion and Ideal Gas
  - Laws of Thermodynamics
  - Heat and Phase Changes
- Electricity
  - Electric charge, force, and field
  - Gauss’s Law

- Electric Potential
- Circuits

- Magnetism
  - Magnetic force and dipole
  - Biot-Savart and Ampere's Law
  - Induction and Inductance
  - LR/LC Circuits

WORKLOAD

COURSEWORK

- 2 midterms
- 1 final exam based on lecture material (finals week)
- ~5 labs
- ~5 discussion quizzes
- Weekly MasteringPhysics homework

TIME COMMITMENT

3 hours of lecture per week and 4 hours of lab section per week.

CHOOSING THE COURSE

WHEN TO TAKE

This class is required for chemical engineering and chemistry majors. It is offered both spring and fall semesters. This is the second physics course in the 7 series. It is usually taken in the first semester of sophomore year, but can be taken anytime beforehand as well.

WHAT NEXT?

- PHYS 7C (phys7c.html)

ADDITIONAL COMMENTS AND TIPS

Physics 7B is taught similarly to 7A with very similar discussion and lab structure and the use of MasteringPhysics. Students who skipped out of 7A may struggle slightly to adjust to the course, however it is totally doable.

The labs are relatively easy and done completely during the period. The difficulty of the quizzes depends on the GSI. MasterPhysics solutions can be easily accessible online, but I highly recommend doing the problems first to ensure understanding of the material. Be prepared to apply calculus to your problems.

Students generally find the thermodynamics portion of the course easier than the electricity and magnetism portion.

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