

Phys110-ELECTROMAGNETISM

Altuğ Özpineci

METU

PHYS110

odtu

Your Lecturer

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Course Web Page: Course Material -> Phys110

Syllabus

- Text Book: “Fundamentals of Physics,” Halliday, Resnick and Walker
- Subjects to be covered:
 - Static Charges
 - Electric Charge and Electric Field (1 week)
 - Gauss' Law (1 week)
 - Electric Potential (1 week)
 - Capacitance, Dielectrics, Electric Energy Storage (1 week)
 - Electric Currents and Resistance (1 week)
 - DC Circuits (2 weeks)
 - Charges moving with constant speed
 - Magnetism (1 week)
 - Sources of Magnetic Field (1 week)
 - Electromagnetic Induction and Faraday's Law (1 week)
 - Inductance, Electromagnetic Oscillations and AC Circuits (2 weeks)
 - Accelerated Charges
 - Maxwell's Equations and Electromagnetic Waves (2 weeks)
- 12 Chapters in 14 weeks

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Supplementary Material and References

- H. C. Ohanian, “Physics”
- R. P. Feynman “Lectures on Physics, Vol. 1”
<http://www.feynmanlectures.info>
- Open Courseware Project (OCW)
 - MIT OCW (<http://ocw.mit.edu>) (in particular see **Physics II: Electricity and Magnetism**, Turkish translation is also available at <http://www.acikders.org.tr/course/view.php?id=38>)
 - TÜBA OCW (in Turkish) (<http://www.acikders.org.tr>)
 - METU OCW (<http://ocw.metu.edu.tr>)
- Any other related book in the **library**

Grading

Grades are **NOT** the aim of studying! They are only means of measuring how much you have learned!

Grading

- 5% Pop Quizes
- 25% each midterm (two midterms in total)
- 25% Final Exam
- 20% Homework
- Bonus: Can increase your grade upto half a letter
 - Translate 5 (or more) items from English wikipedia to Turkish wikipedia(or your mother tongue if different). You have to let us know in a month which items you are planning to translate (30 pages)

Pop Quizzes

- The purpose is to encourage you
 - to attend the lectures
 - to study regularly,
- Will be simple question that can be easily done if you have payed attention to the lecture
- Their time and number will not be announced! They can be any day, and any time during the lecture, even more than one in a given day
- After the quiz, everybody hands in their own quiz

HOMEWORK

- Their purpose is to encourage you to study regularly and to practice
- You can discuss the solutions in groups, also in the forum
- The homework you hand in should be what **YOU** understand (otherwise you get zero from the HW)
- Suggestion: discuss your solutions with your friends, but when you write down your solutions, make sure that you are on your own, and your friends are away.

Final Exam

Conditions under which you will **NOT** be allowed to take the final exam (and receive a grade of FA):

- Being absent in more than 30% of Pop Quizzes
- Not taking any of the midterms without any excuse
- Missing more than two **pre-reports**.

There won't be any Resit Examination

Excuses

- Missing 30% of pop quizzes, or not submitting two pre-reports is not a *right*
- It is your responsibility to attend ALL the lectures.
- Due to various reasons, you might not be able to attend some quizzes, or miss some pre-reports
- Your excuses will be accepted only if they are below the above-mentioned limits

Excuses

Common Excuses:

- This course overlaps with another course! Drop one of the courses
- Your sophomore friends told you that these rules will not be applied. Tell your sophomore friend to make a final for you
- You did not think that these will be applied. (I do not know if this excuse or not following the regulations are worse)
- You had calculated that you would not miss more than 70% of the quizzes, but last week of the semester, you got sick. (check the first two items in the previous slide)
- You are a genius and you do not need to follow the course. (Prove it in the first midterm and then come and talk with me)
- You have a special case. (come and talk to me within a few weeks, NOT the week before the final)

Excuses

Read the FAQ in ODTUCLASS

PRE-REPORTS

- Should be submitted to ODTUCLASS *before* the beginning of each chapter (dates will be announced on ODTUCLASS)
- It should be a one page report which contains:
 - Half a page summary of what is written in that chapter
 - Half a page of the things that you did not understand

10 ways to annoy a college professor ¹

Arrive late for class and then ask questions about topics discussed before you arrived. Please anticipate traffic or parking issues, and build in extra time to get to class. If you had a plane to catch, a red carpet event to attend, or a business deadline, would you be late? If yes, then PR is not the industry for you.

10 ways to annoy a college professor ¹

Skip class and arrive the following session asking, “Did I miss anything?” No, of course you didn't. We stared at the wall and contemplated why you decided not to show up.

¹This Site

10 ways to annoy a college professor ¹

Complain about the workload. Do you think we enjoy taking 200 or more pages of students' work home to edit, grade, and assess? We give you work to help you learn and to prepare you for future success. Professors spend countless hours outside of class creating meaningful assignments, grading, and assessing your work to help you learn.

10 ways to annoy a college professor ¹

Don't do your homework and then make excuses. Please take responsibility for your own life and academic choices and success. In the job market, your employer will not care about your really great excuse regarding why you missed a deadline.

¹This Site

How Much Should You Work?

- ECTS-European Credit Transfer System
- Course load in each semester should be 30ECTS credits.
- 30ECTS: students spend 750-900 hours in a semester on course related activities
- Approximately 60 hours per week- 10 hours per day (1 day rest)
- 10hours work+8 hours sleep+2 hours eating=20 hours a day (on the average)

Ethics

- You should never claim the work to be yours if you have not done it
 - Handing in somebody else's (from your friends, from internet, or from some other source) solutions in homework/midterms (cheating/plagiarism)
 - Claiming that your data/solution is correct even if you know that they are not (falsification/data fabrication)
- If you quote somebody else's work, make sure that you cite him/her so that the reader understands that you do not claim to be the owner of your work
- According to discipline regulation of committee of higher education, cheating is punished by sending the student away for at least one semester (**YOK Öğrenci Disiplin Yönetmeliği**)

Best Teachers:

Your best teachers are (in order of importance):

- 1 Yourself: learn to learn on your own. (use the library!) You are the only person that will know when you have really learned a subject.
- 2 Your friends: Collaborate. Your professors will not have a clue why you do not understand things that are obvious for them.
- 3 Your professor. Even if you think that a professor *does not know anything*, s/he still knows more physics than you, and has more experience.

- Student participation is crucial for students to learn.
- Not so easy in large classrooms with ≈ 150 student
- Optimum number of students in a class ≈ 17 (PHED graduate students)
- **SMS system**: send your answers to 4660 (Turkcell, Avea, or Vodafone free of charge)















