Syllabus, Physics 216, Engineering Physics II, 3 credits

Summer 08

1 General Information

Time: M-Thur 3:30 -5:25pm
Room: Gardiner Hall, room 230
Instructor: Sophia Cisneros
E-mail (the best way to reach me): besk47@nmsu.edu
Office: Gardiner Hall, room 361
Office Hours: M-Thur 2:30-3:30 pm
Phone: 575-646-7614

1.1 Designation:
Required for Engineering Physics and many other Engineering Majors.

1.2 Course Description:
Calculus-level treatment of topics in electricity, magnetism and optics.

1.3 Prerequisite:
PHYS 213 or 215; MATH 192

1.4 Required Text:
University Physics, 12e by Young/Freedman
This book is accompanied by a cd with a pass-code you will need to be able to login to do the
homeworks on the Mastering Physics website.
http://www.masteringphysics.com/
to register on the website; click on the text book image, and enter the site.
Enroll in course using ID number PHYS216SUMMER2008

1.5 Class Web page:
http://physics.nmsu.edu/Physics/academics/Undergrad/ugcoursesumII.html
1.6 Course Objectives:
Students should become proficient in the topics of electricity, magnetism and optics presented. Students should be able to connect the concepts presented to the uses in engineering applications.

1.7 Topics Covered:

1.8 Class Schedule:
Four 2 hour class per week. Two midterms and one final exam. Homeworks will be given daily. The student will be expected to read approximately one chapter per day due to the accelerated pace of the summer course.

1.9 Contribution of Course to Professional Component:
Along with PHYS 215, this course sets the foundation for the undergraduate physics curriculum. Students learn the basic concepts of electromagnetism and optics, how to apply them, and how to solve physical problems. The course provides three credits of physics.

1.10 Relationship of course to Program Outcomes:
This course teaches students to:
- Apply knowledge of math, science and engineering.
- Describe the process of scientific inquiry
- Solve problems scientifically
- Communicate scientific information
- Apply quantitative analysis to scientific problems
- Apply scientific thinking to real world problems

2 Specific Information
1. Misconduct:
Academic and non-academic misconduct, including intentional and non-intentional plagiarism: For definitions please refer to the Student Code of Conduct. This information may be accessed through the web at:
http://lib.nmsu.edu/instruction/plagiarismforstudents.htm.
Don’t Cheat. Copying is the same as plagiarism and it is grounds for expulsion from school.

2. Students with Disabilities:
Equity: Feel free to call Jerry Nevarez, Director of Institutional Equity, at 505-646-3635 with any questions you may have about NMSU’s Non-Discrimination Policy and complaints of discrimination, including sexual harassment.
Students with Disabilities: Feel free to call Michael Armendariz, Coordinator of Services for Students with Disabilities, at 505-646-6840 with any questions you may have on student issues related
to the Americans with Disabilities Act (ADA) and/or Section 504 of the Rehabilitation Act of 1973. All medical information will be treated confidentially.

3. **Reading:** You will need to read each chapter before class. The material is dense and will come at you quickly. Do spend an hour with each chapter before lecture. It is not necessary to read every sentence, but you can easily pick up a first idea of the topics by skimming the chapter, reading interesting captions and making sense of the end of chapter summary. It is often beneficial to then return to the chapter again, after lecture, perhaps while doing the homeworks. This repetition will increase the amount of information you can cram into your brain in a short period of time.

4. **Attendance:** I will not be taking attendance. However, missing class will make it easy to fall behind, and this class will be moving too fast to catch if you lose contact. Do not miss lecture.

5. **Homeworks:** You will have a homework each day we have lecture. These are designed to give you some of the practice you will need to become competent for the exams. However, they are not complete, and you will be held responsible for examples covered in class as well as those problems worked in each chapter, of sections which we cover in class.

   The act of writing the problems out is very essential to your brain being able to remember all of this, so, while the problems are on the Mastering Physics website; I will advise you to look at the screen and copy them down manually.

   This will aid you if you come to the office hour with any questions, as well as by virtue of building your physics/math proficiency. Each homework problem assigned will give you three chances to enter the answer. After that you will be assigned zero credit. As such, it is important you have worked your solution carefully before you enter it into the computer.

   I am hoping these assignment will run between 60 each night. If they are taking you much longer than this, you need to see me during office hours.

   Each assignment will have a due date posted on the Mastering Physics site. Generally these dates will be a few days after we have covered the material. Due to the time frame of the course, no late homeworks will be accepted. The lowest 3 homework grades will be dropped.

6. **Quizes:** Quizes will not be necessary unless it becomes clear to me that the reading is not happening before the lectures.

7. **Exams:** There will be three exams. Each will cover only the topics included in the previous lectures. Each exam will be given in a 60 minute time period.

   If you feel you would benefit from more time, You are welcome to begin one hour early at the beginning of the office hour.

   After exams we will have a 45minute lecture.

8. **Grading:** You will receive a final grade built half of homeworks, and half from exams. Any borderline grades will be determined based on class participation.

9. **Office Hours:** I will have an office hour available to you each day for the hour directly before lecture. These office hours are a good place to go through problems more carefully, however it is not a place where I do your homework for you. There is a tutoring center for homework help. If you have genuinely tried to understand a homework problem, and it’s not budging, then please feel free to ask me. However, please make sure you well prepared with your reading.

10. **PARTICIPATE:** You are encouraged to ask questions at any point. Participating in class is not only a good way to help you learn, but it also helps others in the class.
3 Tentative Lecture Schedule

1. Lecture 1, July 7,
   Ch.21 Electric Charge and Electric Field

2. Lecture 2, July 8,
   Ch.22 Gauss’s Law

3. Lecture 3, July 9,
   Ch.23 Electric Potential

4. Lecture 4, July 10,
   Ch.24 Capacitance and Dielectrics

5. Lecture 5, July 14,
   Ch.25 Current, Resistance...

6. Lecture 6, July 15,
   Ch.26 Direct Currents Review

7. Lecture 7, July 16, Exam 1 (Ch.21-26),
   Ch.27 Magnetic Fields...

8. Lecture 8, July 17,
   Ch.27 Ch.28 Magnetic Fields, Sources of...

9. Lecture 9, July 21,
   Ch.29 Electromagnetic Induction

10. Lecture 10, July 22,
    Ch.30 Induction

11. Lecture 11, July 23,
    Ch.31 Alternating Current

12. Lecture 12, July 24,
    Review

13. Lecture 13, July 28, Exam 2 (Ch.27-31),
    Ch.32 Electromagnetic Waves

14. Lecture 14, July 29,
    Ch.33 Nature and Propagation of Light

15. Lecture 15, July 30,
    Ch.34 Geometric Optics

16. Lecture 16, July 31,
    Ch.35 Interference
17. Lecture 17, August 4,
Ch.36 Diffraction

18. Lecture 18, August 5,
Ch.37 Relativity

19. Lecture 19, August 6,
Review

20. Lecture 20, August 7, **Exam 3 (Ch.32-37)**

opted from Dr. Pate and Dr. Armstrong. Compiled by S.Cisneros