1 Welcome!

Welcome to the first semester of Electromagnetic Theory. While this course stands alone, it also prepares you with the foundations for Radiation and Optics (Phys 334).

1.1 Course Goals

You will gain a deep understanding of Electric and Magnetic fields, charges, currents and potentials. You will understand the origin and meaning of Maxwell's Equations and be able to apply them to a wide variety of situations. You will reinforce techniques of vector calculus you have previously learned and see how powerful they are when applied to E&M.

1.2 Websites

There are two sites:

http://www.physics.nmt.edu/∼rsonnenf/phys333/phys333.html
I will call this "my site", or "the course website". Here you will find a syllabus and homework assignments.

There is also Canvas:
https://nmt.instructure.com/login/canvas
I will always call this "Canvas". This is where you will submit reading assignments. (Log in with your 900 #).

1.3 Questions and Corrections in Lecture

I strongly encourage questions in lecture, and know it takes courage to ask a question in front of 25 of your peers. Questions make the lecture much more interesting and relevant for all. Extra credit points will often be given for questions, and always for corrections or clarifications.

1.4 Textbook

Required Textbook: *Electricity and Magnetism*, Edward Purcell and David Morin, Third edition.

2 Honesty

Tech has a clearly written academic honesty policy which applies to all courses even if the instructor does not mention it. It is available in the 2013-2014 Undergraduate Catalog (starting on page 59). Find the catalog at: http://www.nmt.edu/university-catalogs. I encourage you to read it. I have found Tech students to act honorably, with few exceptions. For those lapses of judgement I have taken actions ranging from failing the exam/homework in question to failing the student for the course.

3 Grading

Your grade includes homework (40%), exams (45%), and Reading Assignments (15%).

3.1 Reading Assignments

You will be asked to read one half to one chapter per week. Submit to Canvas on one page the three most important things you learned from the reading assignment. At the bottom of the same page, raise two questions that the reading inspired. I will use your questions to guide class discussion.

Reading assignments must be typed and submitted as .pdfs. Late reading assignments will incur a penalty unless by prior arrangement.

3.2 Homework

Homework and its due dates are posted on the website. It will consist of Problems and Exercises. In Purcell, all Problems have full solutions in Chapter 12 of the book. Exercises (both from Purcell and from Sonnenfeld) do not have solutions provided.

Homework shall be done one piece of paper (or more, if required) per problem. These pages will be kept in a three ring binder or other system that allows easy insertion and removal. Each problem shall have the SPN on
the top right corner, circled. Each problem shall have your last name (or uniquely identifying ideograph/logo) immediately under the SPN. The reason for these requirements will be apparent in the section on Quizzes.

Problems should almost always show a 3x3 inch figure, the fundamental equations used, and an orderly series of steps leading from fundamentals to answer. Numerical answers without physical units are incomplete, and points will be deducted.

The final answer (either formula or number) shall be included in a box (or a different color) next to the problem number.

I will grade some homework problems in detail and some based on your answer. I will not announce in advance which will be which, but will use a random number generator. The detailed problems will count at four times the credit of the other problems.

### 3.3 Exams

Exams are in-class. You may bring a scientific calculator. No notes are allowed. No constants or equations will be provided. There is really not that much to memorize if you understand the material. While I may make up some exam problems, most will chosen from the Problems assigned for homework. This is your motivator for actually working and understanding the problems for which the solutions are provided.

### 4 Getting Help

There are resources available to help you with problems or concepts which you find difficult. I encourage you to form a homework team, and will help connect you to other students if you need this help. You are responsible for assuring that you learn the material.

I am glad to answer your questions during (or after) class, or at my office (during office hours).

#### 4.1 Disabilities

If you have (or think you may have) a Disability, visit the counseling center with all speed and get a documentation letter. Make an appointment to speak with me regarding how you can best succeed in the course. Please see me before the end of August.

#### 4.2 Sex ’n Drugs ’n Rock-n-Roll (and Family and Money)

I think I have covered the five areas of a college students life that can cause serious problems (though Rock-n-Roll in itself is rarely to blame). For those times when one of these gets out of hand, you should know that New Mexico Tech offers mental health and substance abuse counseling through the Office of Counseling and Disability Services. The confidential services are provided free of charge by licensed professionals. To schedule an appointment, please call 835-6619.

#### 4.3 Emergencies and Cel Phones

Cel phones should be set to vibrate during class. You are all encouraged to register your cel-phone with Tech’s emergency notification system. (In red at top of Tech home page) If all of our phones go off at once during class ... it probably means we should do something. If I am lost in a derivation and do not seem to notice, please interrupt me.

Good luck, and have a great semester!