ECE 305 ELECTROMAGNETIC THEORY - SPRING 2016

Section: ECE 305-001 CRN 11262 TR 10:30-11:45 PM Room: Sandburg Hall 107

Instructor: Alok Berry, Room # 3238, Nguyen Engineering Building
Phone: (703) 993-1606 e-mail: aberry@gmu.edu.
Office Hours: MW 10:30 – 12:00 PM
TR 1:00 – 2:00 PM By appointment only, others by appointment
TA: Lakshmi Bhamidipati, email: lbhamid2@gmu.edu


Prereq: Grade of C or better in PHYS 260 or in MATH 214,

Course Description: Static and time varying electric and magnetic fields, dielectrics, magnetization, Maxwell’s Equations and introduction to transmission lines. Course uses vector calculus and algebra of complex numbers.

Grading:
Graded Work: Home Works, Reading Assessment, Class Participation, Attendance, two Class Exams and Comp. Exam.
Home Works* 20%
Quizzes, reading and class assessments 20%
2 Class Exams** 40% (Each exam 20%)
Comp. Final Exam 20%
*If you miss classes and do not participate in class, all the credit (you earn for the home works) may be reduced to zero.
**Dates for the class exams will be announced in class and about a week’s notice will be given.

IMPORTANT INSTRUCTIONS

a. Prior to the class, it is expected that one reads the material which is going to be covered in the class. In the beginning of every class I will ask questions to different students to check about reading assessment or give reading assessment test. Assessment quiz may be given during the class.

b. After particular section/sections are completed the students must finish the practice exercises and HW problems pertaining to that section. You have to submit hard copy of your HW in class only. Late HWs will not be accepted. Solutions to some of the HW problems may be provided.

c. No overdue for home works and no makeup for exams. In extreme case if a makeup exam is given then only 50% of the earned grades in the makeup exam may be counted in making the final grade. You may use calculators in the exam. Graphing calculators are not permitted in the exams.

d. GMU HONOR CODE will be strictly enforced. Violations of the honor code may result in no credit for this course. For more information about GMU honor code, go to the link http://oai.gmu.edu/

e. You are not allowed to bring any loose sheets or formula sheet in the exam. You have to show the work at the space provided, if you need more space you can use the backside of the page. I will provide you the formulae sheet and the blank sheets for scrap work.
f. It is required that you write all the class exams, you get zero points for the missed exam/exams.

g. **For maximum learning experience** it is very important that students attend all the lectures and do all the suggested home work problems and examples done in the book. Some exam questions will be drawn exclusively from lecture notes and problems you are supposed to have seen in HW etc.

h. Please do not come late to the class as it disturbs the whole class. If because of some emergency you have to leave the class early you must inform me in the beginning of the class. If you show up late in the class or you leave the class early, you may lose all the credit (10%) for class participation, attendance and HW etc. Once you come to the class I do not expect you to leave the class till it is over. Come prepared so that you can stay in the class for the entire duration. Please inform me if you have some medical problem and you need to go out during the class.

**PROPOSED COURSE OUTLINE**

1. Review Vector Algebra
2. Coordinate Systems and Vector Calculus
3. Electrostatic Fields
4. Electric Fields in Material Space
5. Electrostatic Boundary-Value Problems
6. Magnetostrictive Fields
7. Magnetic Forces, Materials and Devices
8. Maxwell’s Equations
9. Electromagnetic Wave Propagation
10. Transmission Lines, waveguides and Antennas
11. **Comp. Final Exam:** Tuesday, 5/10/16
   Time 10:30 – 1:15 PM

The Comp. Final Exam will be designed to be a two hour long exam. The dates for 2 mid-term exams will be announced in class and about a week’s notice will be given. The exam dates will depend on the course progress.

**TEST TIPS**

* Print your Name VERY CAREFULLY on First Sheet/Formula sheet (if provided)
* Read the Problem
* Answer what (but only what) is Asked. You will lose points by providing unnecessary information not needed in the problem.
* Label diagrams with parameters in equations - Points are lost here!
* **Watch for, and then include UNITS in answers - Points are lost here!**
* Identify Answers (Box, Circle, Underline, etc) and put them at the designated space (If provided).
* Communicate
* You have seen all required concepts before
  
  DO NOT PANIC!!

**In general:**

  Manage your time. (Also known as "racking up the points")
  Skim all problems - find familiar areas.
  Read total problem through: if part "a" is "impossible", parts "b", "c", etc may be "doable".
  Allot more time to high point value problems.
  Leave time to go back and touch up earlier problems.
  Do easiest problems first.
  Quit when you reach the end of a problem's budgeted time.
You will invariably get more points by starting a new problem than by trying to finish an old one. Guess. (If the odds are with you) Make clear how you are solving a problem. (Don't make me guess) Tell me what you would do (if you had more time or if the problem had not gotten out of control by some errors). Note any assumptions you have made in doing the problem. Watch point values: generally they tell how much work is involved.

HOMEWORK DO’S AND DON’Ts

A. Mechanics: Points will be deducted for not following these guidelines. You are expected to do the HW problems pertaining to a section after a section has been covered in the class and it may be collected in the next class.

1. Buy, beg or steal a stapler to fasten homework pages together.

2. On all the paper/papers you submit you must print your name, only last three digits of your G#, the HW problems you are submitting, date and the section# pertaining to that HW.

3. Use only standard (8.5 x 11 inch) size paper. Do not use legal size paper or spiral bound notebook paper.

4. Do not fold assignments in half.

5. Put all the problems in order.

6. You must have the cover sheet and on the cover sheet must write neatly your name (upper case letters), student number (last 3 digits only) the assigned homework problems and you must mention the problems which you have not attempted.

7. Home works will be accepted in class only. If the homework is not submitted in the class, there are good chances for it to be lost?

8. Must draw all the required circuit diagrams. If required circuit diagrams are not drawn for a problem you may get no credit for the entire HW.

9. In HWs and exams etc. you will lose points if you do not put appropriate units and prefixes with your answers.

10. 13. If you do not follow these guidelines you may get no credit for the HW.

11. In all the work to be graded, show all steps and all the work neatly. You will get zero credit if all the work is not shown.

B. Other considerations

1. Show work. Techniques, approaches and methods for solving are more important than answers on homework (but answers DO count).

2. Homework and exams must be individual effort. Students are encouraged to form study groups to learn and discuss the material.

3. Include all diagrams, labels etc. necessary for the problem to stand "alone."

4. Identify (Box, circle, underline, etc.) the answer.
IMPORTANT INFORMATION:

It is very important that you do not miss classes. No make-up for missed exams. In an extreme case if a makeup exam is given (with proper documentation provided) only 50% of the credit (what one earns in the makeup exam) may be counted in making the final grade. The makeup exam may be an oral exam.

The exam problems will consist of:

a. Multiple choice problems in which you will have to mark the correct answer. For these problems no partial credit will be given and each of these may be worth 1 point.
b. Multiple choice problems in which you will have to show the work and partial credit will be given and each of these problems will be worth more than 1 point
c. Problems in which you will have to show all the work and will get partial credit for the work shown.

If you score very low (less than 50%) in the exam/exams you may get a “F” grade in the course.

You must know that the grade is awarded based upon your performance in the class. Your performance includes grades earned in the home works, in the exams, in the projects (if any) and participation in class, class attendance and other things mentioned in the class. Your grades are not based or decided by the circumstances e.g. you are graduating or you have got a job etc.

See the university calendar to check add and drop dates and tuitions liabilities.

IMPORTANT: Please note it is the university policy that all sound emitting devices shall be turned off during classes unless otherwise authorized by the instructor. Cell phones have no place in class and they must be turned off prior to entering the class. It is required by me that all of these devices will be kept in the purse or in the back-pack. If you keep the cell phone out or you take it out; you may be asked to leave the class and you must see me before the next class, to discuss this matter. If you have an emergency and want to keep the cell phone out, you must talk with me prior to the class.
SOME IMPORTANT INFORMATION

ACADEMIC INTEGRITY
GMU is an Honor Code university; please see the University Catalog for a full description of the code and the honor committee process. The principle of academic integrity is taken very seriously and violations are treated gravely. What does academic integrity mean in this course? Essentially this: when you are responsible for a task, you will perform that task. When you rely on someone else’s work in an aspect of the performance of that task, you will give full credit in the proper, accepted form. Another aspect of academic integrity is the free play of ideas. Vigorous discussion and debate are encouraged in this course, with the firm expectation that all aspects of the class will be conducted with civility and respect for differing ideas, perspectives, and traditions. When in doubt (of any kind) please ask for guidance and clarification.

GMU EMAIL ACCOUNTS
Students must use their Mason email accounts – either the “MEMO” system or the “MASONLIVE” account to receive important university information, including messages related to the class. You may not get response from me if you use any other email account. See http://masonlive.gmu.edu for more information.

Disability Accommodations

- If you have a documented learning disability or other condition that may affect academic performance you should: 1) make sure this documentation is on file with Office of Disability Services (SUB I, Rm. 4205; 993-2474; http://ods.gmu.edu) (to determine the accommodations you need; and 2) talk with me to discuss your accommodation needs.

- If you are a student with a disability and you need academic accommodations, please see me and contact the Office of Disability Services (ODS) at 993-2474, http://ods.gmu.edu. All academic accommodations must be arranged through the ODS.

- If you have a learning or physical difference that may affect your academic work, you will need to furnish appropriate documentation to the Office of Disability Services. If you qualify for accommodation, the ODS staff will give you a form detailing appropriate accommodations for your instructor. In addition to providing your professors with the appropriate form, please take the initiative to discuss accommodation with them at the beginning of the semester and as needed during the term. Because of the range of learning differences, faculty members need to learn from you the most effective ways to assist you. If you have contacted the Office of Disability Services and are waiting to hear from a counselor, please tell me.

OTHER USEFUL CAMPUS RESOURCES:
WRITING CENTER: A114 Robinson Hall; (703) 993-1200; http://writingcenter.gmu.edu
UNIVERSITY LIBRARIES “Ask a Librarian”
http://library.gmu.edu/mudge/IM/IMRef.html

COUNSELING AND PSYCHOLOGICAL SERVICES (CAPS): (703) 993-2380;
http://caps.gmu.edu

UNIVERSITY POLICIES
The University Catalog, http://catalog.gmu.edu, is the central resource for university policies affecting student, faculty, and staff conduct in university academic affairs. Other policies are available at http://universitypolicy.gmu.edu/.

In case of emergency the important number to call is (703)-993-2810