



**ECE 3800:400 Electromagnetics
Summer 2025 (Online Section)**

Time and Location

Online Asynchronous

Lecture Recordings will be posted on **Canvas** in various modules. Homeworks, Two Midterm Exams (Test1, Test2) and a Final Exam will be canvas based. The course will be conducted entirely online. Students should regularly check the Canvas system throughout the summer session. Announcements about the course, tests and homework will be posted to Canvas. No make up for missed exams or assignments will be given.

Instructor

Dr. Tehseen Zahra Raza

traza@clemson.edu (Important: Prefix subject line with “ECE3800” otherwise the email might go into a different folder and might not be answered in time.)

Queries can be send through email.

Course Modality: Online Asynchronous.

Modification Statement:

Any updates to the syllabus and changes in the course delivery will be updated regularly on the Canvas course website. The instructor reserves the right to modify any aspect of the syllabus and grading policies at any time during the semester. This syllabus was prepared on 04/25/2025 and any updates will be updated and communicated through canvas.

Please read the syllabus in its entirety, if a student has a concern with any syllabus policy, he/she should discuss it with the instructor in the first week of the semester. Afterwards, no requests will be entertained. By staying in the course, you agree to comply with all the policies and procedures described in this syllabus.

There will be about 25-30 on-line modules/pre-recorded presentations, 10-12 homework assignments, 2 open-book asynchronous online midterm exams (Test1 & Test2) through canvas and one asynchronous online Final exam through canvas. The midterm exams /final exam dates will be announced at the beginning of the semester. The exams are administered online through **Canvas**. The exams will be timed, but you will have a widow of 24 hours to take the midterm exams and 48 hours window for final exam. If you are in a different time zone, please plan accordingly.

Canvas is an electronic course management system that will be used to post class notes, assignments, exams, homework clarifications and hints, supplemental readings, links to other resources, and grades. This may be added to as the session progresses.

Pre-recorded lecture videos will be made available on canvas.

Students are responsible for all material covered, all announcements made, and all assignments given in every lecture. Some lectures may cover material not found in the textbook. It is the responsibility of each student to make up any deficiencies that result from a missed class.

For the exams administered online through canvas, students are required to have a laptop computer, internet connectivity. Homework and exam submissions may require you to scan your work into one pdf and submit online. **It is student's responsibility to make sure that they have necessary software and hardware resources required for online asynchronous course modality.** Redundancy in internet access is recommended but not required, e.g. primary internet connection via WIFI and secondary via cell phone data plan.

Grader: If any, the information about the assigned grader will be updated on Canvas.

Prerequisites and Corequisites: MATH 2060 and PHYS 2210

Common Policies

See the ECE Common Course Syllabus for policies that apply to all ECE courses at Clemson.

Textbook

Required Text: *Elements of Electromagnetics, Seventh Edition*, Matthew N.O. Sadiku, Oxford University Press.

It is okay to purchase an old book (same edition), since students do not need any access code or digital content or any other complementary material. It is acceptable to use a digital copy of the textbook as well. You are not required to have a physical copy. I will complement the book with exercises and other materials.

Course Description

Topics in electrostatics include static electric charge, force, field (Coulomb's and Gauss's laws), flux, potential, energy, dielectrics, boundary conditions, and capacitance. Topics in magnetostatics include steady electric current, magnetic field (Biot-Savart and Ampere's law), force, flux, energy, boundary conditions, and inductance.

Student Learning Outcomes

At the completion of the course, students will be able to understand time invariant electromagnetic phenomena that provides the basis for application in engineering and physics.

Calculator:

You may use any calculator you wish on the exams. A calculator that can solve *simultaneous equations with complex numbers* is recommended, like the TI-89. *It is your responsibility to learn how to use your calculator!*

TOPICAL OUTLINE:

1. Vector Algebra (Review) Textbook Chapter 1
2. Coordinate Systems and Transformation (Review) Textbook Chapter 2
3. Vector Calculus (Review) Textbook Chapter 3
4. Electric Charge & Electrostatic Fields Textbook Chapter 4

Test I (Tentative)

5. Electric Fields in material Space Textbook Chapter 5
6. Electrostatic Boundary Value Problems Resistance and Capacitance Textbook Chapter 6
7. Magnetostatic Fields Textbook Chapter 7

Test II (Tentative)

7. Inductance Textbook Chapter 8

Final Exam (comprehensive and compulsory)

Attendance Policies

See the ECE Common Course Syllabus for general policies related to attendance.

Class Cancellation Policy:

Online lectures will be available on canvas.

Grading Policy:

Grading will be based on homeworks, two midterm exams (Test1 & Test2), and a (compulsory and cumulative) final exam. The expected weights for these are:

Homeworks	30 %
Exam 1	20 %
Exam 2	20 %
Final Exam	30 %

Final grades will be assigned based on the scale

$90 \leq \text{score} \leq 100$	==	A
$80 \leq \text{score} < 90$	==	B
$70 \leq \text{score} < 80$	==	C
$60 \leq \text{score} < 70$	==	D
$\text{score} < 60$	==	F

Please make sure you understand that scores will not be rounded, for example 89.9 is a B.

1. **“Notification of Absence” module in Canvas (If you press Help(?) on canvas page this will take you to the “Notification of Absence” module in Canvas):** The Notification of Absence module in Canvas allows students to notify instructors (via an email) of an absence from class and provides for the following categories: court attendance, death of immediate family member, illness, illness of family member, injury, military duty, religious observance, scheduled surgery, university function, unscheduled hospitalization, other anticipated absence, or other unanticipated absence. The notification form requires a brief explanation, dates and times.

2. Please Note: **This does not serve as an “excuse” from class.** It is a request for an excused absence and students. Once this request is received, the instructor will consider the reasons explained to consider it as a valid excuse and take measures appropriately according to the syllabus policy.

3. If students are unable to report the absence by computer, they may reach the Office of Advocacy and Success via 864.656.0935. Students with excessive absences who need academic or medical assistance can also contact the Office of Advocacy and Success.

Exams

Test1 and Test2 will be canvas-based 60 minutes long, and a 24 hour window will be provided to attempt on exams. Canvas will log you out once the 60 minutes time is over OR the 24 hour window has expired.

Final exam will be canvas-based 150 minutes long and a 48 hour window will be provided to attempt the exam. Canvas will log you out once the 150 minutes time is over OR the 48 hour window has expired.

(Midterm Exam 1) Test 1: Asynchronous Multiple Choice/Short Answer through Canvas. Open-book, open-notes. Will be **60 minutes** exam and available from **Tuesday 27, May 2025 8:00 am - Wednesday 28, May 2025 7:59 am. (Eastern daylight time*)**. **The time window is fixed.** You will NOT be allowed to take exam any other time. If you are employed, you will need to arrange matters with your employer to ensure that you are available to take the exams on these dates and times.

A grade of zero will be assigned for an unexcused absence in the exam.

A grade of 0 will be assigned if any wrong file is submitted.

(Midterm Exam 2) Test 2: Asynchronous Multiple Choice/Short Answer through Canvas. Open-book, open-notes. Will be **60 minutes** exam and available from **Monday 9, June 2025 8:00 am - Tuesday 10, June 2025 7:59 am. (Eastern daylight time*)**. **The time window is fixed.** You will NOT be allowed to take exam any other time. If you are employed, you will need to arrange matters with your employer to ensure that you are available to take the exams on these dates and times.

A grade of zero will be assigned for an unexcused absence in the exam.

A grade of 0 will be assigned if any wrong file is submitted.

Final examination: Will be **150 minutes** exam and available from **Thursday 19, June 2025 12:00 am - Friday 20, June 2025 11:59 pm. (Eastern daylight time*)**. Asynchronous Multiple choice/Short Answer based exam through Canvas. **The time is fixed.** You will NOT be allowed to take the final exam any other time. If you are employed, you will need to arrange matters with your employer to ensure that you are available to take the exams on these dates and times.

A grade of zero will be assigned for an unexcused absence in the exam.

A grade of 0 will be assigned if any wrong file is submitted.

***If you are in a different time zone, please plan accordingly.**

1. All exams are open book, and the test locale is at your discretion. You may use any or all course material for reference. The test must be your own work. Be warned that Canvas has certain built-in features and an on-line oversight capability that renders collusion or cooperation very likely to be discovered.

2. Student or any other personnel collaboration is not permitted on the exams. Furthermore, access to websites that provide solutions to questions/problems is also prohibited for exams.

The use of artificial intelligence (AI) tools are not permitted for any work in this course, even with proper documentation and citation. Any AI generated content is strongly prohibited and will be verified. Canvas integrates many AI checking tools like Turnitin etc. which will be used to verify submitted work. Suspected violations will be facilitated using the Academic Integrity process outlined in the Graduate School Policies and Procedures Handbook. See the Undergraduate Academic Integrity Policy website for additional information and the current catalog (“Academic Regulations” section) for the policy

3. The exam formats are descriptive and/or multiple choice (MCQ). You may be required to scan/upload your solution to canvas. Please make sure you have the necessary software/hardware capabilities to take the exam online.

4. A missed and unexcused midterm exams or the final exam will be given a grade of zero.

5. If a student has an excused absence for a midterm exam, then the final exam grade will be substituted in place of the missed midterm exam grade. **NO makeup exams will be given.** Students may be excused from at most one of the two midterms (test1 and test2). For example, if a student scored 90% on Exam 1 and 80% on Final Exam and missed Exam 2 due to excused absence. In this case the student will be assigned 80% in Exam 2 due to excused absence. If there are any bonuses in the final, it will not be included while calculating the missed exam grade substitution for a missed exam.

An excused absence for a midterm exam generally requires a very good reason, discussed with the instructor, and agreed upon in advance.

7. If a student misses an exam for any unanticipated reason, please contact the instructor via email as soon as possible.

8. Final exam is compulsory. Final exam is cumulative. All work done throughout the semester is covered in the Final exam syllabus. There would be **NO REMAKE** of the final exam due to strict grading schedule between the scheduled final exam and the grade submission deadline. If the student must miss the final exam due to excused absence, the student will be assigned Incomplete, and the exam will be monitored the coming semester.

9. If a homework/assignment/exam is NOT submitted within the time specified due to upload error or any software related error, it will be considered **NOT submitted** and a grade of 0 will be assigned. This is the responsibility of students to check the assignment after uploading that it is correctly uploaded and submitted.

10. If a wrong file is submitted for a homework/assignment/exam within the specified time, it will not **allowed to be resubmitted**. A grade of 0 will be assigned for wrong file submission. This is the responsibility of students to check the assignment after uploading that the correct file is submitted.

11. Any assignments that require written submission must be legible; submissions that cannot be read will be marked wrong and a grade of 0 will be assigned.

12. If the university is closed due to unforeseen circumstances (e.g. inclement weather, power outage) during a scheduled exam time, **then the exam will be held during the next scheduled class period unless announced otherwise via email or through canvas.**

Further details about the testing procedures will be provided in Canvas announcements.

Schedule: For each topic, students are expected to watch the video lectures posted on Canvas and read the corresponding chapter by the date listed below. Note that even if the dates overlap weekends and holidays, lectures can be viewed at any time, regardless of the date or time. Weekly schedule will be uploaded on canvas.

Study and Exam Preparation Tips:

Lecture: Be sure to capture in handwriting the thought process for examples and various concepts during the synchronous lecture.

After lecture: Briefly review your notes to reinforce high level concepts and problem-solving approaches. Check any calculations or derivations that went by too fast in lecture.

Performing well on exams requires both a solid grasp of the concepts and the ability to perform calculations correctly and efficiently. Use the sample exam to assess your preparedness, NOT to learn the material in the first place. Take the sample exam under conditions like the actual exam, i.e. timed with access to just a note sheet and calculator.

Homework:

Homework provides the practice necessary to learn and master the concepts of the course. An important component of homework is learning how to start previously unseen problems given the concepts you have seen in class.

- Homework problems will be assigned and collected for credit via Canvas. Must be prepared and submitted in accordance with the “**ECE3800 Homework Submission Guidelines**” document posted on Canvas. Homework assignments are mostly **handwritten** on a paper and scanned into ONE pdf and submitted. **NO DIGITAL** Solutions using IPAD or surface etc will be accepted. A grade of 0 will be assigned for homework submitted using digital methods.
- Homework assignments are generally due 4-8 days after posting.
- **Late submission for homework** is accepted for upto 12 hours with 10% of grade penalty. No homework submission is accepted after that.
- No submission or wrong file submission will be given a grade of 0.

- Multiple assignments might be open simultaneously. Be careful to submit to the correct assignment! Wrong file or submissions will lead to a score of 0.
- You should attempt every problem on your own. You are encouraged to discuss homework with your peers, but you should start and finish problems yourself. All submitted work must be completed by you individually.
- Homework Grading will be according to the rubric defined on canvas. Some assignments may also award points for clarity of the written solutions. Some assignments may be graded on one question chosen at random.
- Homework bonuses *MAY BE* awarded through occasional extra credit opportunities.

Contact:

I will be accessible as possible via E mail and through office hours. The best means of communication for me is E mail. Please use your Clemson E mail address in correspondence. I will *not* be available on weekends particularly Saturday and Sunday evenings, so be aware of this when you schedule your study times and particularly with respect to the last-minute problems you find while working on homework.

Because of privacy regulations, University faculty and staff communicate with students only through Clemson email. You must use your Clemson email account in this course for all email communications. Please check your Clemson account frequently to ensure you receive important messages. Please ensure you have the Canvas set up properly to receive notifications.

ACCESSIBILITY STATEMENT:

Clemson University values the diversity of our student body as a strength and a critical component of our dynamic community. Students with disabilities or temporary injuries/conditions may require accommodations due to barriers in the structure of facilities, course design, technology used for curricular purposes, or other campus resources. Students who experience a barrier to full access to this class should let the instructor know and make an appointment to meet with a staff member in Student Accessibility Services as soon as possible. You can make an appointment by calling 864-656-6848, by emailing studentaccess@lists.clemson.edu, or by visiting Suite 239 in the Academic Success Center building. Appointments are strongly encouraged – drop-ins will be seen, if at all possible, but there could be a significant wait due to scheduled appointments. Students who have accommodations are strongly encouraged to request, obtain and send these to their instructors [through the AIM portal](#) as early in the semester as possible so that accommodations can be made in a timely manner. It is the student’s responsibility to follow this process each semester.

You can access further information at the [Student Accessibility website](#). Other information is at the university’s [Accessibility Portal](#).

TITLE IX STATEMENT:

The Clemson University Title IX statement: Clemson University is committed to a policy of equal opportunity for all persons and does not discriminate on the basis of race, color, religion, sex, sexual orientation, gender, pregnancy, national origin, age, disability, veteran's status, genetic information or protected activity in employment, educational programs and activities, admissions and financial aid. This includes a prohibition against sexual harassment and sexual violence as mandated by Title IX of the Education Amendments of 1972. This [Title IX policy](#) is located on the Campus Life website. Ms. Alesia Smith is the Clemson University Title IX Coordinator, and the Executive Director of Equity Compliance. Her office is located at 223 Brackett Hall, 864.656.0620. Remember, email is not a fully secured method of communication and should not be used to discuss Title IX issues.

SAFE CAMPUS:

Clemson University is committed to providing a safe campus environment for students, faculty, staff, and visitors. As members of the community, we encourage you to take the following actions to be better prepared in case of an emergency:

- a. Ensure you are signed up for emergency alerts (<https://www.getrave.com/login/clemson>)
- b. Download the Rave Guardian app to your phone (<https://www.clemson.edu/cusafety/cupd/rave-guardian/>)
- c. Learn what you can do to prepare yourself in the event of an active threat (<http://www.clemson.edu/cusafety/EmergencyManagement/>)

ACADEMIC INTEGRITY:

As members of the Clemson University community, we have inherited Thomas Green Clemson's vision of this institution as a "high seminary of learning." Fundamental to this vision is a mutual commitment to truthfulness, honor, and responsibility, without which we cannot earn the trust and respect of others. Furthermore, we recognize that academic dishonesty detracts from the value of a Clemson degree. Therefore, we shall not tolerate lying, cheating, or stealing in any form. All infractions of academic dishonesty by undergraduates must be reported to Undergraduate Studies for resolution through that office. In cases of plagiarism instructors may use the Plagiarism Resolution Form. See the [Undergraduate Academic Integrity Policy](#) website for additional information and [the current catalogue](#) for the policy. For graduate students, [see the current graduate student handbook](#) for all policies.

Additionally, for undergraduate classes: Plagiarism, which includes the intentional or unintentional copying of language, structure, or ideas of another and attributing the work to one's own efforts. Graded works generated by artificial intelligence or ghostwritten (either paid or free) are expressly forbidden. **In short, the use of Chatbots, AI tools or tools to paraphrase other work will not be accepted.** Further information about plagiarism can be found on this [link](#).

Any evidence of academic dishonesty will be pursued through Clemson's academic integrity process, even if you are a transient student and not seeking a Clemson degree. If you are found in violation, for a first offense, you are subject to an "F" grade in the course and a record of this violation in your records.

COPYRIGHT STATEMENT:

Materials in this course are copyrighted. They are intended for use only by students registered and enrolled in this course and only for instructional activities associated with and for the duration of the course. They may not be retained in another medium or disseminated further. They are provided in compliance with the provisions of the Teach Act. Students should be reminded to refer to the Use of Copyrighted Materials and "Fair Use Guidelines" policy in on the Clemson University website for additional information: <https://clemson.libguides.com/copyright>.

This syllabus was prepared by Dr. Tehseen Raza on 04/25/2025