COURSE DESCRIPTION:

The second semester of calculus-based physics sequence for science, computer science, and engineering majors. Principles of electricity and magnetism, including circuits, electromagnetism, waves, sound, light, and optics are studied. Performance of basic laboratory experiments supporting theoretical physics principles and applications of electricity and magnetism, including circuits, electromagnetism, waves, sound, light, and optics. Also includes experimental design, data collection and analysis, and preparation of laboratory reports. (3 Lec., 3 Lab.)

Prerequisite Required: PHYS 2425 and MATH 2414.

TIME & PLACE:

LECTURE: INET (Online)

LAB: INET (Online)

TEXTBOOK & MATERIALS:

Important: Students who are part of the IncludED program do not need to purchase any learning materials unless directed by the instructor.

STUDENT LEARNING OUTCOMES:

Upon successful completion of the course, the students will:

➢ Solve problems involving the inter-relationship of fundamental charged particles, and electrical forces, fields, and currents.
Apply Kirchhoff’s Rules to analysis of circuits with potential sources, capacitance, inductance, and resistance, including parallel and series capacitance and resistance.

Solve problems in the electrostatic interaction of point charges through the application of Coulomb’s Law.

Solve problems involving the effects of magnetic fields on moving charges or currents, and the relationship of magnetic fields to the currents which produce them.

Use Faraday’s and Lenz’s laws to determine electromotive forces and solve problems involving electromagnetic induction.

Articulate the principles of reflection, refraction, diffraction, interference, and superposition of waves.

Describe the characteristics of light and the electromagnetic spectrum.

**HOMEWORK**

There will be homework every week. You will turn in the homework using the MasteringPhysics, an online homework system. A brief MasteringPhysics user guide is attached along with this syllabus and also posted on eCampus for reference. Each homework will usually be a combination of conceptual and quantitative problems relating to the material from the previous weeks in class. Over the course of the semester the homework will amount to 20% of the grade.

It is important to complete the homework to obtain a good understanding of the material covered (and to practice so you can do well on the exams). You are encouraged to work with others on the homework. However, you are discouraged from letting others do the work and then copying what they did, or you doing the work and letting others copy. The instructor has observed that for the most part successful students pay particular attention to the assigned homework and devote considerable effort to it. Feel free to visit the Instructor whenever you may need assistance with the homework.

**LAB:** Lab handouts will be posted on eCampus every week. Once you have completed the lab, you will submit the answers to the questions included in the lab handout via eCampus. Lab is worth 20% of the grade. If you have any difficulty completing any of the labs, please email the instructor for help, you will get a reply within 24 hours during the working days.

**COURSE SCHEDULE:** See eCampus for suggested weekly schedule of course topics, labs, and exams.

**LATE WORK POLICY:** If you are not able to finish homework on time due to some emergency/illness, contact the instructor as soon as you can, and the instructor may give you extra time to complete the homework. Similarly, if you miss a lab due to any emergency/illness, you can make it up during the open lab hours (posted outside the lab room C320) with instructor’s permission. Instructor can make similar exceptions for the midterm exams.

**VIRTUAL CLASSROOM:** Virtual Classroom link on eCampus course page allows you to participate in course related discussions online, at any time of the day or night, with no need for the participants to be logged into the site at the same time. The discussion is recorded on the course site for all to review and respond at their convenience. Feel free to post your questions in this forum. Anyone in class can respond to the questions and or create new threads. If you have any questions for the instructor, please also email at SaeedAhmad@dcccd.edu and I will respond back within 24 hours during the working days (Monday to Friday).

Please post your short introduction, your name, your major and (optionally) anything else about yourself that you would like to share with the rest of the class, in the thread **Introductions** under Virtual Classroom by
5:00 pm on Saturday, October 24th. This introduction will count towards your class attendance for financial aid purposes and is also worth 1% extra credit.

**Note:** Make-up exams are not given except when a College acceptable excuse (i.e. illness warranting a physician’s care, death in the immediate family, religious absences, and sanctioned college athlete’s events) is supplied with documentation prior to the exam. Final grade is FINAL, no work will be accepted after the final exam.

**Code of Conduct:** Any behavior which is disruptive to the classroom, including talking, cell phone use (turn it off), pagers (turn to vibrate), sleeping or cursing will not be tolerated and will result in being asked to leave the classroom. Police services will be called if warranted.

**GRADING**

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<tr>
<th>Course Component</th>
<th>% Value</th>
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<tbody>
<tr>
<td>Lab</td>
<td>20%</td>
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<tr>
<td>Homework</td>
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<tr>
<td>Midterm Exam I</td>
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<td>Midterm Exam II</td>
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<td>Midterm Exam III</td>
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<td><strong>Total</strong></td>
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**GRADING SCALE**

A: 90 – 100   B: 80 – 90   C: 70 – 80   D: 60 – 70

A grade of F will be assigned to anyone who has below a 60% OR to anyone caught cheating in this course.

**LAB GRADE:** This course satisfies the core curriculum requirement for scientific discovery and sustainability. A minimum lab average of 60 is required in order to pass the course. If your lab average is below 60, regardless of your course average, your course grade will be changed to be equal to your lab average.

**ACADEMIC INTEGRITY AND PLAGIARISM**

Scholastic dishonesty, also known as academic dishonesty or misconduct, is the defined by the DCCCD Student Code of Conduct as acting in an unethical, dishonest manner. It includes, but is not limited to: cheating; plagiarism; falsifying or fabricating information; misrepresentation; facilitating scholastic dishonesty; and collusion.

**Potential Consequences:** DCCCD takes acts of scholastic dishonesty very seriously. Students who commit these offenses could: fail the assignment; fail the course; and/or be suspended or expelled from the college.

*Having trouble?* Your professor should be your first line of defense when you are having trouble. Other resources include:

- your classmates (form a study group!)
- the Tutoring Center.

The Instructor reserves the right to amend the syllabus at a later time. If that happens, an updated copy of the syllabus will be posted on eCampus.