



四川大學

匹兹堡学院
SICHUAN UNIVERSITY
PITTSBURGH INSTITUTE

SCUPI
Sichuan University - Pittsburgh Institute

PHYS 0175: Physics for Science and Engineering 2

Sichuan University - Pittsburgh Institute

Spring 2016, Feb. 29–July 1st

Instructor:	Dr. Vesselin Gueorguiev	Class Meeting Days:	Wednesday & Friday
E-Mail:	vesselin@scu.edu.cn	Meeting Location:	Room 212
Phone:	028-6456-6811	Class Meeting Hours:	
Office:	Room 225	Section 01 Hours:	10:15am - 11:55am
Office Hours:	Wednesday 1pm -3pm Thursday 9:30am – 11am	Section 02 Hours:	8:15am - 9:55am

COURSE TEXTBOOK

TITLE: Principles of Physics Extended, 9th Ed, International Student Version

AUTHORS: *David Halliday, Robert Resnick, and Jearl Walker*

ISBN: 978-0-470-56158-4 ©2011 • John Wiley & Sons, Inc.

<http://as.wiley.com/WileyCDA/WileyTitle/productCd-EHEP002531.html>

WebAssignOnline HW page: www.WebAssign.net (Class Key: scu.cn 98889302)

<https://www.webassign.net/v4cgi/selfenroll/classkey.html>

WILEY STUDENT COMPANION SITE: [Student Companion Site](http://www.StudentCompanionSite.com)

<http://as.wiley.com/WileyCDA/WileyTitle/productCd-EHEP001558.html>

<http://bcs.wiley.com/he-bcs/Books?action=index&itemId=0470561580&bcsId=5590>

COURSE DESCRIPTION:

Physics for Science & Engineering 2 is the second semester of an intensive two-terms (8-credit) introductory physics course sequence. The subjects covered are: electrostatics, electric current, magnetic fields and magnetic forces, the sources of magnetic fields, electromagnetic induction, electromagnetic waves, the nature and propagation of light, interference, and diffraction. Prerequisites or co-requisites: students must have completed Physics 1 and Calculus 2 and should be enrolled in Calculus 3; 4 credit hours.

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COURSE OBJECTIVES/ STUDENT LEARNING OUTCOMES:

The goal of this course is to give you an introductory overview of the physics related to electricity and magnetism. To understand how the laws of physics explain the operation of common technical electric devices you use in your daily life; to develop a systematic, analytical approach to solving problems, and to learn to calculate accurate numerical solutions with the help of a computer. Strong mathematical skills are needed to test your understanding of the models and theories that you will be introduced to.

As the semester progresses you will learn to apply knowledge of mathematics, science, and engineering that requires to:

- Be familiar with the basic concepts and methods physicists use to analyze the world.
- Interpret the different units and scales of measurable quantities.
- Convert units of electromagnetic quantities
- Make use of vectors to describe and analyze electromagnetic forces and fields
- Apply differential calculus to the analysis of electromagnetic processes
- Analyze simple situations and explain them to other people.
- Apply Coulomb's law to relate the magnitude of the electrostatic force
- Explain electric field lines and what their spacing represents.
- Apply Gauss' law to the net flux through a closed surface and the net enclosed charge
- Make use of electric potential and potential energy diagrams
- Acquire a thorough understanding of the concept of electromagnetic force
- Apply the principle of conservation of energy
- Understand and compute quantities related to simple electric LC- and RC- circuits,
- Relate Magnetic fields due to currents to Induction and Inductance Phenomena
- Relate Electro-Magnetic Waves and Maxwell's Equations
- Understand and Explain Interference and Diffraction Phenomena
- Assimilate new material and apply it to analyze different situations

GENERAL COURSE POLICIES

NO CELL PHONES are allowed during class in progress. Cellular telephones should be silenced at the beginning of class.

Be on time for the class sessions. Tardy is discouraged. Students are advised to be punctual and stay for the whole class. Disruptive behavior is discouraged and the perpetrator may be asked to leave the classroom!

If you need to miss lecture for any reason it is your responsibility to arrange for someone to take notes for you. You are responsible for everything we discuss in lecture. Absences should have a proper medical excuse. Unexcused absences may result in no-credit for the course.

You are expected to read the sections in the textbooks related to the topics to be discussed prior to the lecture as well as after (see the course schedule below).

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You will be expected to **read passages from the textbook** as well as **supplemental reading material** regularly. You should be prepared to discuss these readings in class.

Supplemental reading material will be distributed via the adopted **Course Management System**. If you do not have a computer at home you should make arrangements to access the reading materials at one of the campus computer labs accordingly.

During each class there will be **quizzes** on the assigned reading material. Quizzes will be administered via **clickers**. Sharing of clickers or using someone's clicker will be discouraged.

Each student should use **only his/her own clicker for quizzes**.

Homework will be assigned via the **Online HW webpage**. If you do not have a computer at home you should make arrangements to access the homework web page to complete your homework assignments on time at one of the campus computer labs.

Homework assignments are to be submitted by the due date. You should keep a record of your homework in **HW notebooks** or **HW binder** and be ready to present it upon request. You may discuss homework problems with your classmates, but you are responsible for your own work.

There will be couple of **exams** during the semester and a comprehensive **final exam**. Students are expected to take the exams on the day they are scheduled.

If you anticipate being unable to attend an examination, please contact me, as soon as possible, so we can discuss appropriate measures. In the event of an emergency you must let me know about the emergency prior to the exam if possible and bring a valid written excuse as soon as you return to school. Appropriate accommodations will be made for such situations. Graphic calculators, cell phones, other electronic devices, and cheat sheets will not be allowed during the exams or quizzes.

You are expected to check the adopted **Course Management System** and the **Online HW webpage** few times a week in order to see the posted assignments and your course progress. After an assignment grade has been posted online, students must **see the instructor within one week** if they wish to discuss the assignment and their work. *Any confusions and discrepancies should be resolved within one week of their origination.*

There will be **no make-up quizzes and exams**. Any exceptions to this will be made on a case-by-case basis with only extreme circumstances worthy of consideration. Prior notice is required and can be done by phone, voice-mail, or email. This in no way guarantees a subsequent waiver of this policy.

The course schedule and syllabus are tentative, thus changes to the syllabus are possible. If changes are made then they will be announced in class and online.

Academic Integrity Policy:

"Violations of academic integrity include, but are not limited to, cheating, plagiarism, or misrepresentation in oral or written form. Such violations will be dealt with severely, in accord with University policy. Plagiarism means representing someone else's idea or writing as if it were your own. If you use someone else's idea or writing, be sure the source is clearly

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designated.” It is expected that students adhere to the academic integrity policy that is presented in the Student’s Honor Code of Conduct / Student Handbook.

Disability Services:

Any personal learning accommodation that may be needed by the student to be successful in this course must be told to the instructor immediately in order to assure compliance and accommodation. Audio or video recording (or any other form of recording) of classes is not permitted unless expressly allowed by the instructor as a special accommodation for students who are currently registered with the Disability Resource Services Program and are approved for this accommodation. Recordings allowed as special accommodations are for the personal use of the DRS-approved student, and may only be distributed to other persons who have been approved by the DRS program. The instructor may require the student to sign an Audio/Video Recording Agreement, which they may keep for their records.

Contact Information Guidelines:

If you need to contact me, you may reach me by phone or by email. Email is most reliable if you do not reach me in person by phone. A return phone number, slowly and clearly stated, must accompany phone messages. Leaving a message does not qualify as contacting me. Do not wait an inordinate amount of time for a return call. Call back, or try email if I haven’t called back within few hours.

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COURSE Grading System:	Grading Scale:	90% +	A
Homework: 20%		80 – 89%	B
Quizzes: 10%		70 – 79%	C
Exams: 40% (2x20% each)		60 – 69%	D
Final: 30%		<60%	F

Sub-divisions(Letter +/-) is within 2% of the boundary, i.e. 80 – 82% B- and 87 – 89 % B+.

Course Schedule:

The topics for each week of the course are outlined below. The schedule and the topics are tentative and could change (we may have to add/skip some topics) depending on our progress.

Week 1, Mar. 02/04: Ch21 - Electric Charge and Coulomb's Law

Week 2, Mar. 09/11: Ch22 - Electric Fields.

Week 3, Mar. 16/18: Ch23 - Gauss' Law.

Week 4, Mar. 23/25: Ch24 - Electric Potential.

Week 5, Mar. 30/Apr.01: **Exam 1**&Ch25 - Capacitance

Week 6, Apr. 06/08: Ch26 - Current and Resistance

Week 7, Apr. 13/15: Ch27 - Circuits

Week 8, Apr. 20/22: Ch28 - Magnetic Fields

Week 9, Apr. 27/29: Ch29 - Magnetic Fields due to Currents

Week10, May. 04/06: **Exam 2** &Ch30 - Induction and Inductance

Week11, May. 11/13: Ch31 - Electromagnetic Oscillations and Alternating Current

Week12, May. 18/20: Ch32 - Maxwell's Equations; Magnetism of Matter

Week13, May. 25/27: Ch33 - Electromagnetic Waves

Week14, Jun. 01/03: Ch34-Images (this chapter may not be covered if schedule changes)

Week15, Jun. 08/10: Ch35 - Interference.

Week16, Jun. 15/17: Ch36 - Diffraction.

Final Exam (Wednesday, Jun 29th)