

INTRODUCTION TO PHYSICS II

PHYS 113 – SDSM&T

SPRING SEMESTER 2009

Class Meetings: M, W, F **9:00 – 9:50 a.m., CB 206W**
Course Instructor: *Dr. Donna Kliche*, 394-1957 (Office), 394-2547 (TLC)
Instructor's Email: Donna.Kliche@sdsmt.edu
Class Website: <http://webpages.sdsmt.edu/~dkliche/>
Office: MI 201A
Office Hours: NOT an open door policy!!!
Monday, Wednesday and Friday from 1 - 3 p.m. or by appointment only.

(3-0) 3 credits. Prerequisite: PHYS 111. Co-requisite is PHYS 113L. This is the second course in a two (2) semester algebra-level sequence, covering fundamental concepts of physics. This sequence is appropriate for pre-professional majors requiring two (2) semesters of physics as well as for pre-med students. Topics include electricity and magnetism, sound, light, optics, and some modern physics concepts if schedule permits. However, SDSM&T course covers electricity and magnetism only, as shown in chapters 15-21 of the text book, volume 2. The course is designed to include many applications similar to those given in the MCAT exams. Credit will not be allowed in both PHYS 111-113 and PHYS 211-213. May not be used for credit toward an engineering or science degree (except Interdisciplinary Science, Geology (Paleontology emphasis), Applied Chemistry, and Associate of Arts).

Textbook: Serway/Faughn, College Physics, eighth edition, volume 2

The final grade for the course will be based on the following **LETTER GRADE**

		A	90-100%
2 (1-Hour) Exams	200	B	80 -89%
10 Quizzes of 20 minutes each	150	C	70 - 79%
Final Exam	<u>150</u>	D	60 - 69%
TOTAL	500	F	< 60%

Homework will be assigned Mondays or Wednesdays, and will require solving problems related to the concepts presented during the lectures. Bonus points will be given to students who will bring their homework completed the following Monday at the beginning of the class. Late submission of homework is not qualified for bonus points. The eligible number of bonus points will be specified on the homework. Homework is going to be listed on Dr. Kliche's web page.

Quizzes are given on Mondays, and will consist of selected problems assigned as homework. Quizzes are announced beforehand. The dates are: January 26; February 2 and 9; March 2, 16, 23 and 30; April 20 and 27. Students are responsible for taking the exams and quizzes when scheduled. Anyone missing an exam or quiz without prior approval and arrangement with Dr. Kliche, or certifiable medical reasons, will be assigned a zero grade for the exam or quiz in question. The Final Exam will be a comprehensive exam on topics that have received emphasis. Everyone must take the final exam.

Besides gaining knowledge of the physical laws and how to apply them, students will be expected to improve their ability to use mathematics and problem solving skills.

The hour exams will cover the following material (subject to revision):

HOUR EXAM	CHAPTERS	DATE	TIME
EXAM I	15 - 16	February 18 th	9:00 - 9:50 a.m.
EXAM II	17 - 19	April 1 st	9:00 - 9:50 a.m.
FINAL EXAM	15 - 21	May 5 th	9:00 - 10:50 a.m.

Students with special needs or requiring special accommodations should contact Dr. Donna Kliche at 394-1957 and/or the campus ADA coordinator, Ms. Jolie McCoy, at 394-1924 at the earliest opportunity.

Course objectives

1. To present the basic concepts and principles of electricity and magnetism;
2. To strengthen an understanding of the concepts and principles through a broad range of interesting applications in the real world.

To meet these objectives, emphasis is placed on sound physical arguments and problem-solving methodology.

Upon completion of this course, students should demonstrate the ability to:

1. Calculate electric forces and electric fields for various applications.
2. Calculate electric potential energy and electric potential for various systems.
3. Understand the laws governing electrical circuits.
4. Calculate the magnetic forces and fields for various applications.
5. Use electromagnetic induction concepts in problem solving.

Students are expected to spend a minimum of six hours per week studying for every three hours spent in class. Students who spend the minimum time studying usually get the minimum grade.

Freedom in learning: *Under Board of Regents and University policy student academic performance may be evaluated solely on an academic basis, not on opinions or conduct in matters unrelated to academic standards. Students should be free to take reasoned exception to the data or views offered in any course of study and to reserve judgment about matters of opinion, but they are responsible for learning the content of any course of study for which they are enrolled. Students who believe that an academic evaluation reflects prejudiced or capricious consideration of student opinions or conduct unrelated to academic standards should contact the dean of the college which offers the class to initiate a review of the evaluation.*

GenEd Goal #6: *Students will understand the fundamental principles of the natural sciences and apply scientific methods of inquiry to investigate the natural world.*

Student Learning Outcomes: As a result of taking courses meeting this goal, students will:

1. Demonstrate the scientific method in a laboratory experience. This outcome will be achieved and assessed in Phys 113L course.
2. Gather and critically evaluate data using scientific method.
Assessment: Students will be able to critically evaluate data (given or obtained) with proper accuracy using appropriate laws and formulas of classical mechanics for scientifically sound presentation of laboratory reports, homework assignments, and of solutions on quizzes and exams.
3. Identify and explain the basic concepts, terminology and theories of selected natural sciences.

Assessment: Students will be able to identify and apply basic concepts and appropriate laws of classical mechanics in order to solve assigned problems in homework, quizzes, exams, and in oral presentation.

4. Apply selected natural science concepts and theories to contemporary issues.

Assessment: Students will be able to explain how physics concepts, laws, and phenomena relate to contemporary engineering and science in classroom discussions and written assignments.

TENTATIVE SCHEDULE: Spring 2009

Week of	Monday	Wednesday	Friday
Jan 12th			Syllabus/Chapter 15
Jan 19st	<i>Holiday/No Classes</i>	Chapter 15	Chapter 15
Jan 26th	Quiz 1 / Chapter 15	Chapter 15	Chapter 16
Feb 2th	Quiz 2 / Chapter 16	Chapter 16	Chapter 16
Feb 9th	Quiz 3 / Chapter 16	Chapter 17	Review
Feb 16th	<i>Holiday/No Classes</i>	Exam 1	Chapter 17
Feb 23th	Chapter 17	Chapter 17	Chapter 18
Mar 2rd	Quiz 4 / Chapter 18	Chapter 18	Chapter 18
Mar 9th	<i>Spring Vacation</i>	<i>Spring Vacation</i>	<i>Spring Vacation</i>
Mar 16th	Quiz 5 / Chapter 19	Chapter 19	Chapter 19
Mar 23th	Quiz 6 / Chapter 19	Chapter 19	Chapter 20
Mar 30th	Quiz 7 / Review	Exam 2	Chapter 20
Apr 6th	Chapter 20	Chapter 20	<i>Easter Break</i>
Apr 13th	<i>Easter Break</i>	Chapter 20	Chapter 20
Apr 20th	Quiz 8 / Chapter 21	Chapter 21	Chapter 21
Apr 27th	Quiz 9 / Chapter 21	Chapter 21	Review
FINALS	FINAL EXAM (May 5 th) 9 – 11 AM		

All exams and quizzes are given in room CB 206W.

POLICIES

1. Each week, an average of 10 problems will be assigned to students as homework. Friday session (recitation) is assigned to problem solving. Students should attempt to work all assigned problems prior to a recitation so that they may obtain assistance on specific difficulties during the recitation. Attendance at recitation is very important. The Recitation section held on Friday is an integral component of the course.

2. Bonus points will be given to students who will bring their homework completed the following Monday at the beginning of the class. Late submission of homework is not qualified for bonus points.
3. Quizzes will be open book, with **no notes or cards allowed**. The quiz will be selected from the assigned homework (problems) the week before the quiz.
4. Normally, all exams and quizzes will be returned in your recitation section.
5. All exams will be a combination of problems and/or multiple-choice questions.
6. All exams/quizzes, after normalization will total your instructor's evaluation score as a letter.
7. **All exams, including the final, are open book. Only the standard course textbook is allowed. Student prepared note cards and sheets are not permitted. Calculators are permitted.**
8. One-hour exam **regular-problem** solution should contain:
 - a. Statement of what is given;
 - b. Statement of what is to be found;
 - c. The solution with appropriate equations, pictures and graphs;
 - d. The necessary steps to show how the problem is solved;
 - e. If it is a numerical answer, it should be marked with appropriate units, usually to 3 significant numbers.There will be considerable grade reduction if any of the above elements are missing in a solution.
9. **The final exam will be comprehensive with some emphasis on material covered after Exam II.**
10. Any violation of the academic integrity policy, such as **cheating and plagiarism**, will not be tolerated in this course. Penalties may range from a failing grade for the work in question to failure in the course.

Electronic Devices Policy: *Please turn off your cell phone before class starts. No text messaging in class. No headphones. If you wish to use a laptop in this class for purposes of note taking, that's great; however, you will be required to download DyKnow software and then join ENGL350 to activate. Any attempt to circumvent the DyKnow monitoring system will be considered a form of cheating and a breach of academic integrity. Note that according to "Policy Governing Academic Integrity" in the SDSM&T Undergraduate Catalog, the instructor of record for this course has discretion of how acts of academic dishonesty are penalized, subject to the appeal process, and that "Penalties may range from requiring the student to repeat the work in question to failure in the course" (72-73). No other use of any other electronic/computer media is allowed during class time.*