

## PHY 152 – General Physics II Syllabus

### Credit

4 semester hours

3 hours of lecture per week, 3 hours of lab per week

### Prerequisites

PHY 152

### Course Description

Light, electricity, magnetism, and modern physics.

### Rationale for Course

Physics is the study of the physical phenomena that we observe in our universe. It is broad ranging and essential to all the sciences. This course aims to introduce the fundamental concepts of physics, focusing primarily on the areas of electricity, magnetism, and optics. Students will develop problem solving skills, learning how to logically approach and evaluate a variety of physical situations.

### Learning Objectives

- The student will be able to understand physical and geometrical optical phenomena based on classical optical theory and will become proficient in the analysis of optics problems using classical principles.
- The student will be able to understand electromagnetic phenomena using classical electrical and magnetic field theory and will become proficient in the analysis of electromagnetic problems using classical principles.
- The student will be able to understand the behavior of electrical circuits and will become proficient in the analysis of electrical circuits using Kirchhoff's Rules.

### Academic Integrity

Students are expected to be honest and to submit their own work on exams and research papers. Strict adherence to the Mississippi College "Honesty Policy" (*2009–2010 Mississippi College Undergraduate Bulletin, pg. 60*) will be followed.

### Course Outline

- Electric Charge and Electric Field
- Electric Potential
- Capacitance and Dielectrics
- Current, Resistance, and Electromotive Force
- DC Circuits
- Magnetic Fields and Forces
- Electromagnetic Induction
- Alternating Current
- Electromagnetic Waves
- Optics
- The Special Theory of Relativity

### Method of Instruction

Class will consist primarily of presenting fundamental physics concepts, working problems, and discussing in-class demonstrations. Key points will be highlighted by the choice of examples, and these points will be discussed in the context of the example.

### Required Text and Materials

*Physics, 6<sup>th</sup> Edition*, by Giancoli. In addition to the text, you will need a scientific calculator and a laboratory data notebook. It may also be beneficial to bring a set of colored pencils to lecture and lab. Figures shown on the board are often drawn in multi-color for clarity, so it is recommended that the illustrations in your notes take advantage of this capability as well.

### Grading

Four or five examinations will be given during the semester. If given on Fridays, they will be untimed (within reason). You will be allowed to use an equation sheet. Exams will usually consist of multiple choice concept questions and open word problems. Homework will be collected following the completion of each chapter. Exams will constitute 75% of the final grade, labs will account for 20%, and homework will account for 5%. The course grade is determined from the percentage of points.

Scale:	Grade	Final Average
	A	90–100
	B	80–89
	C	70–79
	D	60–69
	F	0–59

Labs are not an afterthought! Each student must earn an average of 15 points (out of 20 given) for each lab in order to pass the course no matter what your overall average is. In other words, you can't pass the exams and fail to do the labs. Diligent effort on homework may account for a point being added to the final percentage.

### Makeup Tests

Makeup tests will be given only under the following circumstances:

- Consent of the instructor has been obtained prior to the test.
- An excused absence is obtained from a doctor or the Vice-President for Academic Affairs

### Absences

Mississippi College policies on attendance and academic integrity will be enforced. Please see the *2009–2010 Mississippi College Undergraduate Bulletin*, pg. 56–57 for additional details of these policies. Students are responsible for all work missed during an absence.

### Special Needs

If you need special accommodations due to learning, physical, psychological, or other disabilities, please contact Dr. Buddy Wagner in the Counseling and Career Development Center. He may be reached by phone at 601–925–3354