

## PHYS 152 COLLEGE PHYSICS II

3 credits

Tuesday & Thursday 1:00 – 2:15 pm

<b>INSTRUCTOR:</b>	<b>Joseph Ciotti</b>
<b>OFFICE:</b>	<b>‘Imiloa 134</b>
<b>OFFICE HOURS:</b>	<b>posted on office door</b>
<b>TELEPHONE:</b>	<b>236-9111</b>
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<b>EFFECTIVE DATE:</b>	<b>Spring 2012</b>

### WINDWARD COMMUNITY COLLEGE MISSION STATEMENT

*Windward Community College offers innovative programs in the arts and sciences and opportunities to gain knowledge and understanding of Hawai‘i and its unique heritage. With a special commitment to support the access and educational needs of Native Hawaiians, we provide O‘ahu’s Ko‘olau region and beyond with liberal arts, career and lifelong learning in a supportive and challenging environment — inspiring students to excellence.*

### CATALOG DESCRIPTION

A non-calculus, one-semester course for preprofessional or non-engineering majors. Study of the basic concepts of physics, including the fundamental principles and theories in heat, electricity, magnetism, optics, and modern physics.

**PREREQUISITES:** PHYS 151 or equivalent and credit or concurrent registration in MATH 140 or its equivalent or consent of instructor.

**COREQUISITE:** PHYS 152L (laboratory highly recommended)

#### **Activities Required/Optional at Scheduled Times Other Than Class Times:**

- MID-TERM EXAM administered during LAB
- optional problem solving session during LAB

### STUDENT LEARNING OUTCOMES

Upon successful completion of the course, the student will be able to:

1. Demonstrate a general understanding of the underlying philosophy of the physics, including the scientific method
2. Apply the basic concepts of physics, including thermodynamics, static and dynamic laws of electricity and magnetism, circuit analysis, electromagnetic radiation, optical systems, and the fundamentals of atomic and nuclear physics.
3. Apply the concept of conservation laws in problem solving
4. Apply basic algebraic and graphical analysis techniques to physics problems.

5. Compare and contrast macroscopic and microscopic systems in physics
6. Define quantitatively and qualitatively the common terms used in physics
7. Assess the limitations of the scientific method and apply error analysis
8. Recognize the physical science principles as applied to everyday situations.

## **COURSE OVERVIEW**

### A. Goals of the Course

The goals of the course are to:

1. Provide the student with a general as well as quantitative understanding of the basic concepts of classical physics dealing with matter, with special reference to the fields of thermodynamics, electricity, magnetism, waves, optics, and modern physics.
2. Introduce the student to the logical processes and mathematical methodology used in physics.
3. Enhance the student's understanding and appreciation of the interrelationships between physics and human activities.

### B. Expectations of Students

Success in this course will be enhanced by:

1. a positive, inquiring attitude toward science and mathematics;
2. setting aside adequate time for studying and working problems;
3. reading the text carefully and making use of other learning materials whenever necessary;
4. seeking assistance from the instructor;
5. class attendance and responsibly fulfilling all course assignments and tasks;
6. keeping abreast with or ahead of the syllabus.

### C. Mode of Instruction

Lecture/Discussion: The initial portion of each class period is used to review and clarify any questions from the previous class meeting. The remaining portion is used to present and discuss new materials. Lecture often incorporate AV material and demonstrations.

## **ASSESSMENT TASKS AND GRADING**

### **Method of Evaluation**

#### 1. General Information:

Evaluation of the successful completion of the objectives of this course will be determined by grades received on all required assignments, quizzes, Mid-Term Exam and Final Exam.

It is the student's responsibility to obtain, complete and turn in all assignments which are given in any class meeting for which the student is absent. The student is also responsible for keeping abreast with any changes in syllabus which are announced in class. Unless permission is granted by the instructor, all assignments and tests must be completed and submitted to the instructor at the specified date and time.

2. Graded Assignments: There will be two (2) graded assignments administered during the semester. These are effectively take-home quizzes. **Each graded assignment is worth 15 points.** Consult the syllabus for due dates.

3. Quizzes:

**Four (4) quizzes** will be scheduled during the semester. All quizzes are closed book/notes tests. The use of a calculator is strongly recommended. **Each quiz is worth 25 points.** Quiz material is drawn primarily from the lecture/reading material introduced between testing periods. Each quiz is conducted during the scheduled classtime and normally takes the full class period. Consult the syllabus for quiz dates.

4. Mid-Term Examination:

A Mid-Term Exam will be scheduled at approximately mid-semester. This is a **closed-book** test. **One (1) sheet of notes** will be allowed during the examination. The use of a calculator is strongly recommended. **The Mid-Term Exam is worth 50 points** and draws its materials from all the material covered from the beginning of the semester to that test date. The Mid-Term is conducted during one of the **scheduled lab** periods. Consult the syllabus for the mid-term exam date.

5. Final Examination:

The Final Exam will be conducted in a manner similar to the Mid-Term. **The Final Exam is worth 100 points** and covers material from the entire course. This is a **closed-book** test with **two (2) sheets of notes** will be allowed during the examination. The use of a calculator is strongly recommended. The Final Exam is given during the timeslot published in WCC's Schedule of Classes (consult the syllabus for the final exam date).

## Grading System

Each letter grade and its respective level of achievement is provided in the following table:

### Letter Grade   Definition

<b>A</b>	90% - 100% of cumulative points possible	(excellent achievement)
<b>B</b>	80% - 89% of cumulative points possible	(above average achievement)
<b>C</b>	70% - 79% of cumulative points possible	(average achievement)
<b>D</b>	60% - 69% of cumulative points possible	(minimal passing achievement)
<b>F</b>	below 60% of cumulative points possible	(less than minimal passing achievement)
<b>I</b>	Incomplete: This is a temporary grade given at the instructor's option when a student has failed to complete a small part of a course because of circumstances beyond the student's control. The student is expected to complete the course by the designated	

deadline in the succeeding semester. If this is not done, the “I” will revert to the contingency grade identified by the instructor.

#### Credit/No Credit Option

*Note: Refer to the current Schedule of Classes for CR/NC declaration deadlines. This grading option is not available in all courses and will not be offered to majors in required courses.*

**CR** Achievement of objectives of course at the C level or higher. (course credit awarded)

**NC** Used to denote achievement of objectives of the course at less than C level under CR/NC option. (no course credits awarded)

**N** The “N” grade, which is issued at the instructor’s option, indicates that the student has worked conscientiously, attended regularly, finished all work, fulfilled course responsibilities, and has made measurable progress. However, either the student has not achieved the minimal student learning objectives and is not yet prepared to succeed at the next level, or the student has made consistent progress in the class but is unable to complete the class due to extenuating circumstances, such as major health, personal or family emergencies, (no course credits awarded)

**W** Official withdrawal from the course course. See the Schedule of Classes for information regarding current semester deadlines. If a student officially withdraws within the erase period, the record of registration will not appear on the student’s transcript. (no course credits awarded)

**L** Audited Course (no course credits awarded)

## LEARNING RESOURCES

#### Required Materials

- *College Physics* (Seventh Edition)  
by Jerry Wilson, Anthony Buffa and Bo Lou
- scientific calculator
- graph paper
- metric ruler

#### Recommended materials

- *Student Study Guide Volume 2*

## Additional Information

1. **Make-Up Test:** If a student is unable to take an exam at the scheduled time, the student is responsible for notifying the instructor of the situation and reason(s). The student is responsible for requesting a make-up exam. An appropriate scoring penalty may be assigned to this make-up at the instructor's discretion. The student may be required to fulfill additional requirements as specified by the instructor in order to qualify for a

make-up test. **No more than one make-up test is allowed per student in this course.** Any test not taken will be assigned a score of zero.

2. **Retest:** Retests are **not** permitted.
3. If you have a physical, sensory, health, cognitive or mental health disability that could limit your ability to fully participate in this class, you are encouraged to contact the Disability Specialist Counselor, Ann Lemke, to discuss reasonable accommodations that will help you succeed in this class. She can be reached by phone at 235-7448 or via email [lemke@hawaii.edu](mailto:lemke@hawaii.edu), or you may stop by Hale 'Akoakoa 213 for more information.
4. Optional problem solving sessions will be conducted during the lab period.
5. A student can determine his/her current grade at any time during the semester by dividing his/her cumulative score by the cumulative points possible and converting into a percentage and referring to the table of Letter Grades.
6. Any student wishing to be informed of his/her Final Exam grade and/or semester grade in advance of the official report of grades should email a request for the grades to the instructor immediately after the Final Exam. The student may also provide the instructor a stamped, self-addressed postcard or envelope on the day of the Final Exam with an enclosed note requesting the grades.

## PHYS 152 Spring 2012

	TUESDAY	THURSDAY
<b>Jan</b>	10 Atomic/Kinetic Theory of Matter (Microscopic vs Macroscopic Realm)  Density (p. 318)	12  10.1 – 10.2 Thermal Energy & Temperature scales  10.4 Thermal Expansion
	17  Pressure (p.317)  Fluid Pressure (pp. 320-328)	19  Buoyancy (pp. 328-333)
	24 Fluid Dynamics & Bernoulli's Equation/Principle (pp. 333-338)	26  <b>QUIZ 1</b>
<b>Jan/ Feb</b>	31  10.3 Ideal Gas Law Processes (p. 424-427)	2  11.1 Heat  11.2 Specific Heat & Calorimetry
	7 11.3 Phase Changes & Latent Heat	9  11.4 Heat Transfer  Three Laws of Thermodynamics (p. 420-421; 431-434; 445)
	14 13.1 Simple Harmonic Motion (pp. 456-459; 465-466)  <b>Assignment #1 Due</b>	16 13.4 Wave Properties  14.1-3 & 14.5 Sound
	21  <b>QUIZ 2</b>	23  15.1-2 Electric Charge, Forces & Fields
<b>Feb/ Mar</b>	28  15.3 Coulomb's Law	1  15.4 Electric Field
	6 Electric Potential & Motion of Charge in Uniform Electric Field (p. 561-565)  <i>Review for Mid-Term (in Lab)</i>	8  <b>MID-TERM EXAM (continue in Lab)</b>

## PHYS 152 Spring 2012

	TUESDAY	THURSDAY
<b>Mar</b>	13 17.1-3 Circuits Diagrams & Ohm's Law	15 17.3 Electrical Safety 17.4 Electrical Power & Cost
	20 23.1-3 Series & Parallel Circuits	22 18.2 Circuit Analysis with Kirchhoff's Rules
	27 <b>SPRING</b>	29 <b>RECESS</b>
<b>Apr</b>	3 <b>QUIZ 3</b>	5 19.1-19.2 Magnetism
	10 19.3 Charged Particles in Magnetic Field	12 Reflection & Refraction (pp. 752-759)
	17 23.3 Lenses (p. 790- 796)	19 18.6 Ray Tracing (Lenses)  <b>Assignment #2 Due</b>
	24 Electromagnetic Spectrum (p. 717) Rainbows (p. 769) 25.2 Human Eye	26 p. 952-953: Periodic Table 29.2 Radioactivity
<b>May</b>	1 30.1-30.2 Nuclear Reaction and Reactors  <i>Review for Mid-Term (in Lab)</i>	3 <b>No Class</b>  <i>(last instruction day on May 2)</i>

**THURS, May 10: FINAL EXAM 12:30 pm - 2:30 pm**